ARISTOTLE AND THE ARABIC TRADITION

This volume of new essays by scholars in classical, medieval, and Arabic philosophy examines the full range of Aristotle's influence upon the Arabic tradition. It explores central themes from Aristotle's corpus, to include logic, rhetoric and poetics, natural science and astronomy, psychology, metaphysics, ethics and politics, and examines how these themes are investigated by Arabic philosophers, to include al-Kindī, al-Fārābī, Avicenna, al-Ghazālī, Ibn Bājja, and Averroes. The volume also includes selected essays which explicitly focus upon the historical reception of Aristotle from the time of the Greek transmission of his texts into the Islamic world to its period of integration and assimilation into Arabic philosophy. This rich and wide ranging collection will appeal to all who are interested in the themes, development, and the context of Aristotle's enduring legacy for the Arabic tradition.

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Aristotle and the Arabic Tradition

Ahmed Alwishah and Josh Michael Hayes

Introduction

Aristotle is widely considered to be the most influential figure in the history of Arabic philosophy. Aristotle's thought has played a fundamental role in various aspects of the Arabic tradition, primarily philosophy (*falsafa*) and to some extent other disciplines, including speculative theology (*kalām*), and jurisprudence. Aristotle is often celebrated in the Islamic world as the "First Teacher/Philosopher" (*al-muʿallim al-awwal*) epitomizing the paradigm of the ancient philosopher who seeks to establish a comprehensive grasp of the first principles of things. Arabic philosophers consistently relied upon the corpus of Aristotle to systematically investigate every branch of knowledge from logic, to the natural sciences, to first philosophy (metaphysics), and ethics. Aristotle's own teleological worldview enabled these philosophers to identify a set of relationships that determined their own understanding of the nature of the universe and the place of the human being within it. Aristotle was not only the first teacher of philosophy, but also the first challenge to be overcome in order to successfully prove their own conclusions. As the primary source for all subsequent philosophical inquiry, the legacy of Aristotle's thought was to be celebrated and organically integrated into Arabic philosophy. In this volume, our aim is to employ the pedagogical model of the classical and medieval curriculum representing the diversity of Aristotle's corpus throughout the Arabic tradition beginning with logic, followed by rhetoric, natural science, astronomy, psychology, and metaphysics, before concluding with ethics and politics.

A number of scholars have already adopted a wide range of approaches to investigating Aristotle's influence upon the Arabic tradition from different areas within philosophy. Some have focused upon a single problem that pertains to a single branch in Aristotle's corpus, while others have provided a more general historical exposition of his reception and the establishment of his work. Both approaches have contributed significantly to our understanding of Aristotle. However, no volume in the existing secondary literature has effectively united both approaches to demonstrate the pervasive influence of Aristotle upon the Arabic tradition. In this volume, we aim to present a more comprehensive approach beginning with a historical exposition of the reception, transmission, and establishment of Aristotle's corpus. At the same time, we aim to present a critical examination of the distinctive branches of Aristotle's corpus treated by a number of Arabic philosophers. In doing so, we hope to provide an understanding of how Aristotle has been historically contextualized and philosophically integrated into the rich intellectual heritage of the Islamic world.

Such a comprehensive approach is significant because it enriches our understanding of the legacy of Aristotle for the Arabic tradition and it answers questions about those interpretive problems that arise within the reception of the Aristotelian corpus, including their origin and development. There is still much to be said about both the influence of Aristotle upon his medieval Arabic successors, specifically the long-standing consequences of this reception. The essays collected in the present volume speak to precisely these issues. The volume provides an account of Aristotle's interpretation in the Islamic world from roughly the ninth through the twelfth centuries C.E. It does so by pairing the various branches of Aristotle's philosophy with fourteen essays that interpret his engagement with the Arabic tradition. The essays vary according to the philosophical themes and individual philosophers chosen by the authors. In all

cases, the essays are composed with particular attention towards the history of Aristotle's reception in the Arabic tradition and the critical examination of a given theme. Since both approaches to interpreting Aristotle are often understood differently, we shall explain how they are used below.

With respect to the historical exposition, the volume aims to address the complexity and the challenges of the transmission of the Aristotelian corpus into the Islamic world. Insofar as the essays remain attentive to the history of the reception of Aristotle within the Arabic tradition, they highlight Aristotle's influence upon respective philosophers such as al-Kindī, al-Fārābī, Avicenna, al-Ghazālī, Ibn Bājja, Averroes, and others included in their scope. Each essay takes into account relevant historical considerations, such as the availability of Aristotle's texts and the attendant challenges presented in the process of establishing these texts as the seminal foundation for the Arabic tradition. However, it should be acknowledged that the transmission of Aristotle into Arabic philosophy does not follow a clear chain of historical continuity. In lieu of attempting to exhaustively trace this lineage in order to reduce it to some kind of unified and comprehensive history, our authors often engage those moments that most decisively contribute to the dissemination of his corpus. The following essays are informed by a portrayal of Aristotle which focuses upon the formative or classical period of Arabic philosophy, namely the stages of translation that made available to Arabic readers most of Aristotle's works to create the historical image of the "Arabic Aristotle." At issue is an interpretation of Aristotle that is distilled through the lens of the Arabic imagination, including the image of the "pseudo-Aristotle" and a rich tradition of writings attributed to him. This is an image of Aristotle that has not been fully explored by scholars. One perspective of the pseudo-Aristotle refers to the Aristotle of the court. For instance, the so-called *Letter of the Golden House* written by an anonymous author during

the early Abbasid period recasts Aristotle's *De Mundo* as an epistolary romance. Another perspective of the pseudo-Aristotle becomes apparent in one of the most widely read works disseminated throughout the early translation period, namely the *Theology of Aristotle*. The transmission of this text conveys a certain image of Aristotelian philosophy as a systematic whole following the stages of ascent from logic to physics and metaphysics to finally arrive at rational theology. The Neo-Platonic tendency to read Aristotle's philosophy in such a way is primarily responsible for inspiring a false image of the Stagirite. Beginning with al-Kindī, this image would continue to influence philosophers in the Islamic world as an enduring legacy of the greatness of Aristotle's works.

Along with the historical exposition**,** another aim of our volume is to demonstrate how the Arabic philosophers came to critically examine a set of philosophical problems within the Aristotelian corpus through the process of refining, reconstructing, and developing his views. Perhaps this is nowhere more evident than throughout the collection of Aristotle's logical treatises known as the *Organon*. Aristotle's *Organon* is widely considered to be the most influential branch of his corpus. Logic was the foundation for all the other sciences as a means to explain the natural world. Its influence transcended philosophy to contribute to different aspects of the Arabic tradition. Syllogistic logic became instrumental for legal reasoning from the earliest stages of Arabic philosophy. Given the significance of the *Organon*, a number of Arabic philosophers discuss and debate various aspects of its reception and transmission, specifically its reconstruction by commentators from late antiquity such as Ammonius, Themistius, and Olympiodorus.

The history of this early reconstruction decisively informs the interpretation of Aristotle's categories by al-Fārābī and Avicenna. While Aristotle purportedly provides an exhaustive list of

the categories, there is a longstanding tradition beginning with the late ancient Greek commentators to justify such a list in order to rationally deduce the number and identity of the categories. The account of the division of the categories taken up by Avicenna is especially important given the particular emphasis upon his rejection of previous approaches. Avicenna reconstructs the arguments against such a deductive approach and occupies a unique position in the history of medieval philosophy by distinguishing himself as an independent thinker rather than as a commentator on Aristotle. In many ways, Avicenna conceives his project in his multivolume work, "Book of the Cure" (*al-Shifāʾ*), as a faithful defender of Aristotle against those Arabic commentators who misinterpreted the Stagirite, including al-Kindī and al-Fārābī. While Avicenna departs from al-Kindī by describing the need for a division of the categories, Avicenna also departs from al-Fārābī by offering a division of them. Avicenna's attempt to reconstruct the problems apparent in any such division provides a new standard for the division of the categories. His re-elaboration of this widely accepted division only confirms Avicenna's own intellectual virtuosity as an original thinker displaying both critical astuteness and philosophical breadth.

Another example of this innovative approach to reconstructing the *Organon* occurs with Avicenna's classification of the various forms of scientific inquiry in his **"**Book of Demonstration" (*Kitāb al-Burhān*). In particular, Avicenna examines the four Aristotelian interrogatives (if, that, why, and what) and their mutual relationship to develop the distinction between definition and demonstration. The latter is ultimately rooted in a more fundamental division in Arabic logic and epistemology between conception (*taṣawwur*) and assent (*taṣdīq*) which identifies irreducible domains of knowledge. A pivotal role in this division is played by the characteristics and function of the demonstrative middle terms within the structure of

scientific syllogisms. Avicenna's analysis of Aristotle's logical theory is also informed by his radical transformation of the truth conditions of formal logic, most notably the squares of opposition, the conversion rules for premises in syllogisms, and the distinction between logical and physical modality. Avicenna's reformation of formal logic reflects his own metaphysical insights, especially the distinction between essence and existence, and necessary and possible being. Avicenna insightfully reconstructs the relationship between logic and metaphysics and their degree of influence upon one another. Instead of affirming a division between the logical and metaphysical domains, Avicenna affirms their integration into a single system.

The *Rhetoric* and the *Poetics* were also studied as disciplines belonging to the *Organon* beginning with al-Fārābī and extending to Averroes. The history of the translation and reception of the *Rhetoric* and the *Poetics* begins with two distinct strands of writing devoted to these works. The first strand explains theoretical concepts, most importantly, the role and place of the *Poetics* and *Rhetoric* in the *Organon*, while the second strand consists of full-fledged commentaries aiming to explain the work in more elaborate exegetical detail. Both strands are illustrated in the commentaries of al-Fārābī, Avicenna, and Averroes, even though the commentators themselves were unable to consult the Greek texts and were often guided by the misleading authority of second-hand sources from late antiquity. The history of Aristotle's *Rhetoric* and *Poetics* also involves bringing to the surface a set of issues that became readily available in Arabic philosophy, including the nature of opinion (*doxa*) and persuasion (*pistis*), the distinction between rhetoric and poetics, the concept of art/craft (*technē*), and concomitant theories of imitation (*mimesis*) and representation. The reconstruction and reception of one seminal text in this tradition, the *Didascalia* or Latin translation of al-Fārābī's *Long Commentary on Aristotle's Rhetoric,* brings to light al-Fārābī's role as a commentator by describing the

influence of the earlier Alexandrian school and observing the critical role of persuasion in the *Rhetoric*. Al-Fārābī recognizes that the Arabic translation of the *Rhetoric* as a treatise on logic has decisive political implications insofar as it functions to illuminate the relationship between citizens and their ruler. This insight is especially important given that the *Didascalia* which we possess today precedes the translation movement and thus has long standing religious and political consequences for the subsequent tradition of Arabic philosophy.

While it is difficult to underestimate the degree of influence of Aristotle's natural science upon the medieval Arabic tradition, these works are also indebted to an understanding of Aristotle's *Organon*. The natural sciences became more active and dynamic in the tenth century as a result of the demand for rational explanations of natural phenomena. There is an extensive history of commentary devoted to the transmission of Aristotle's collected works on natural science, such as the *Physics*, *De Caelo, and Meteorology* through either their direct translation or through a rendering into Arabic from Greek commentators. Due to the breadth of Aristotle's physical corpus, it was not uncommon for Aristotle's texts to be received in a rather fragmentary fashion so that mistranslations and misunderstandings did arise for many of the Arabic commentators. A primary aim of reconstructing this history of early Arabic commentary is to highlight how these differences in translation came to influence their own observations about the natural world. In many cases, their simple observations disproved many of Aristotle's scientific explanations of certain natural phenomena. One such example is the debate regarding the motion of a body through a medium such as air or water. The divergent interpretations of such natural phenomena by Avicenna, Ibn Bājja, and Averroes make evident the extent to which the modern science of Galileo and Newton remained indebted to the Aristotelian-Arabic worldview. Likewise, in the transmission of Aristotle's treatises devoted to astronomy and their integration into the Islamic

world, many questions arise concerning the consequences of their subsequent retrieval and appropriation, specifically regarding the central tension between the Aristotelian and Ptolemaic accounts of the cosmos. Perhaps this tension is nowhere more apparent than with Averroes, who was influenced by Ptolemy and many decades of reading Aristotle. Averroes' commentaries on the *Metaphysics* and *De Caelo* are critically important to his own attempt to establish a theory of the celestial spheres that departs significantly from both Ptolemy and his Iberian contemporaries. Averroes explicitly derides one contemporary, al-Bitrujī, for reviving a homocentric system of the celestial spheres based on Ptolemaic astronomy. However, Averroes was unsuccessful in constructing a coherent theory that could account for the paradoxes inherent in Aristotle's explanation of the Unmoved Mover.

Psychology was also considered as a part of the natural sciences (*al-ṭabīʿiyyāt*) in the Arabic tradition. Within this tradition, al-Fārābī indicated that in addition to natural principles, the principle of the soul was necessary in order to inquire about the motion of living things. Following al-Fārābī, Avicenna claimed that after the study of natural bodies and their motion, one needed to study bodies that have substantial form, namely those bodies that have the form of the soul. Aristotle's *De Anima* was the primary source for studying psychology. Among the central themes regarding the appropriation of Aristotle's *De Anima* within the Arabic tradition are the definition of the soul and its existence, the relationship between the soul and the body, the structure of the internal and external senses, the theory of perception, and theory of the intellect. The nature of self-knowledge and the role of the intellect are of particular interest to many philosophers in the Islamic world. Having adopted a form of dualism, Avicenna naturally departs from Aristotle's theory of self-knowledge by introducing an important distinction between self-cognition and self-awareness. With this distinction, Avicenna demonstrates how self-awareness

is essential and continuous within an individual self. The disagreement between Aristotle and Avicenna about self-knowledge can also be seen with respect to their understanding of the cognition of the divine intellect. Both maintain that the divine intellect essentially and continuously think itself. However, Avicenna disagrees with Aristotle on what constitutes the object of thought for the divine intellect.

Although Aristotle's *De Anima* first became transmitted to individual philosophers such as Avicenna and Ibn Bājja, the *De Anima* perhaps came to be best understood by the *Short*, *Middle*, and *Long Commentaries* of Averroes. The transformation of the *De Anima* into the Arabic commentary tradition is crucially informed by Averroes' account of intentionality distinguishing between apprehended forms, which are present in the soul of the apprehender, and forms that are actually present in the natural world. It is pertinent to trace the etymological complexity of the various uses of the term, "intention" (*maʿnā*), to consider how Averroes uniquely contributes to the history of Aristotelian psychology. Averroes first introduces "intention" in his account of apprehension (*idrāk*), a word unknown to Aristotle, to describe the conjunction between sensation and intellection.

Aristotle's thinking was consciously utilized and implemented to resolve a set of interdisciplinary problems that are critical to the Arabic tradition. However, there is a process of selection whereby some aspects of Aristotle's philosophy are regarded more importantly than others. For example, some of the central aims of the Arabic interpretation of Aristotle's *Metaphysics* are to investigate the relationship between the unicity and nature of Being and God, the creation of the world, and the character of agency and causality. While Aristotle's *Metaphysics* rightly begins as an investigation into first principles, the Arabic reception of the *Metaphysics* is remarkable for the number and extent of translations devoted to constructively

rethinking these principles so that they became consistent and compatible with the theological tenets of Islam, yet also respected the unique status of the *Metaphysics* as a science of being. The historical transmission and reception of the fourteen books of Aristotle's *Metaphysics* is a complex phenomenon beginning with the problem of the selection and order of these books. Since some Arabic philosophers, including al-Kindī, selectively chose certain books in order to insure their compatibility with the doctrine of the unicity of God (*tawḥīd*), a different order of Aristotle's *Metaphysics* came to be presented. Although Book *Alpha* was known within al-Kindī's circle, it did not enjoy the same 'doctrinal' status as Book *Alpha Meizon*. For this reason, the first two books of Aristotle's *Metaphysics* appear in reverse order with respect to their transmission into the Arabic tradition.

Beyond its reception, and unlike the previous disciplines, these debates in metaphysics were highly contentious and precarious. After the execution of Jahm ibn Safwān (746 C.E.) for adopting certain views on free will and divine attributes, many philosophers within the Islamic world realized that debating topics of metaphysics had a significant impact on their theological beliefs. With that in mind, topics in metaphysics were not exclusive to the *falsafa* tradition but were extensively debated in the *kalām* tradition. These two traditions were especially divided over how to demarcate the realm of divine reality from corporeal reality. It became clear for both traditions that the project of bridging these two realms of reality was contingent upon the way one defines a set of metaphysical terms such as existence, essence, substance, categories, wholes, parts, potentiality, and actuality. Thus, a great deal of attention was devoted to these terms and to their origins. In the *falsafa* tradition, al-Kindī and al-Fārābī play a critical role not only in appropriating Aristotle's terms, but ultimately translating them into Arabic. In doing so, both al-Kindī and al-Fārābī encountered a twofold challenge. First, they sought to comprehend the

complexity of Aristotle's lexicon, especially central terms from his *Metaphysics*, like being, substance, and essence, in their different contexts throughout the corpus. Second, and most importantly, they aimed to reconstruct these terms to correspond to their own Arabic lexicon. Al-Fārābī, in particular, skillfully negotiated their linguistic origin, logical syntax, and metaphysical significance. This was particularly true with Arabic terms like *wujūd*, *anniyya*, *huwiyya*, and *sha'iyya*. This process resulted in some cases in terms that transcended the meaning of their Aristotelian origin. Both al-Kindī and al-Fārābī participated in the formative stage of the transmission of the *Metaphysics* into Arabic. However, they diverged in their approaches to interpretation. For instance, the Neo-Platonic emphasis upon the One as identical to the Unmoved Mover enabled al-Kindī to establish a First Cause or absolute beginning to the cosmos. While al-Kindī attempted to harmonize metaphysics with theology, al- Fārābī was careful to clarify the relationship between metaphysics as rational theology, on the one hand, and theodicy and *kalām,* on the other. However, Avicenna has less concern with the establishment of these metaphysical terms or the apparent harmonization of metaphysics with other disciplines and instead systematically develops his own set of ontological principles that logically justified the existence of a necessary existent, its nature, its universal knowledge, and its relation to the cosmos. In the process of doing so, Avicenna departs from some aspects of Aristotle's teachings on metaphysics, especially the issue concerning the relationship between existence and essence. However, al-Ghazālī takes an entirely different approach by rejecting the basic principles of Aristotle's metaphysics and questioning the validity and the meaning of its concepts, such as necessary existence and possible existence. Finally, Averroes views al-Ghazālī's critique as unjustified since it arises from his own reading of Avicenna, which in Averroes' view represented a clear misinterpretation of Aristotle's metaphysics. This complicated picture of

studying metaphysics is taken up in a more substantial way by tracing the origin of these aspects in the *kalām* tradition and identifying their line of continuation in the *falsafa* tradition.

Debates concerning being and necessity also occupied a special place in the Arabic tradition. Since al-Kindī, philosophers in Islamic world, notably al-Fārābī and Avicenna, investigated different senses of being and established criteria in order to distinguish "being" from the concepts of "thing," "nothing," and "non-existence." The distinction between existence (*wujūd*) and possible (*mumkin*) existence enables us to understand the difference between existence and the cause of existence and to account for the different senses of substances and accidents. Another long-standing discussion regarding divine essence and attributes was also extensively investigated by the *kalām* tradition. This discussion has an important influence upon subsequent debates in the *falsafa* tradition. On the one hand, al-Muʿtazila's view of the identity relation between divine essence and attributes was well defended by Avicenna. On the other hand, al-Ashāʿira's theory of attribution was upheld and further developed by al-Ghazālī.

In the past, many scholars have treated the subject matter of agency, free will, and determinism outside the domain of metaphysics. However, in the orbit of Islamic metaphysics, it is organically integrated with central metaphysical concepts such as causation and divine knowledge. The early debate between al-Muʿtazila and al-Ashāʿira on this issue is filtered through the lens of Aristotle's doctrine of the four causes. For example, al-Ghazālī solidifies the position of al-Ashāʿira by questioning Aristotle's doctrine of causality. Furthermore, the topics of agency and causation are indigenous to the discourse of Islamic theology and are later integrated into the *falsafa* tradition. While the *kalam* tradition affirmed that only intelligent beings could be agents and that being an agent (*fāʿil*) was a necessary condition for being a cause

(*sabab*), the *falsafa* tradition affirmed that non-intelligent beings and even inanimate beings could be causes and agents.

The concept of agency is contingent upon the conception that substances could act and be acted upon. This distinctive feature of Aristotle's account of causality is taken up by al-Fārābī and developed by Avicenna after him in two unique ways. First, there is an internal connection between the efficient cause and its effect represented by Aristotle's example of the builder as an efficient cause of the house in virtue of the fact that the builder has the building craft in his soul. The building craft as an activity is itself a principle or form in the agent that is enacted in building and its effect, the house. For al-Fārābī and Avicenna, the paradigm of this internal connection between the efficient cause and its effect is illustrated by their respective accounts of the First Cause as an Unmoved Mover. Second, their accounts of efficient causality are also unique insofar as they claim that per se causes are always simultaneous with their effects. For example, al-Ghazālī attributes to the *falsafa* tradition before him the physical example of a hand stirring water in a bowl. Assuming no void, the water moves simultaneously with the hand. Once the cause ceases to operate, the thing that was effected persists not as an effect, but as a thing in its own right. The *falsafa* tradition ultimately applies both features of Aristotle's account of efficient causality to reconcile the apparent tension between his commitment to the eternity of the world and his proof for the existence of a First Cause of motion.

The domain of metaphysics also shares a common ground with ethics insofar as agency extends to those agents who possess an intellect. The long-standing unity between metaphysics and ethics is a unique attribute of the Arabic tradition. The rationale for this unity between Aristotle's *Metaphysics* and ethical treatises, particularly the *Nicomachean Ethics*, first came to be appropriated by such philosophers as al-Fārābī and Averroes. The *Nicomachean Ethics* has

undergone a long and fascinating history of transmission throughout the Arabic tradition beginning with al-Kindī. However, al-Fārābī was the first Arabic philosopher to consider Aristotle's investigation of the virtues, specifically the intellectual virtues, as applying to the metaphysical domain. Al-Fārābī's reception and interpretation of the *Nicomachean Ethics* indicates the possibility that Aristotle's model of the virtuous citizen be understood on a global and even on a cosmic scale. Indeed, the intellectual virtues so decisively orient the investigation into first principles that ethical inquiry might be said to exceed metaphysics as the most crowning achievement of human intellectual investigation. This view is most widely espoused by al-Fārābī in his treatises, *Attainment of Happiness* (*Taḥṣīl al-saʿāda*) and *The Harmonization of the Two Opinions of the Two Sages: Plato, the Divine and Aristotle* (*Kitāb al-jamʿ bayn raʾyay al-ḥakīmayn, Aflāṭūn al-ilāhī wa Arisṭūṭālīs*). While al-Fārābī's interpretation of the *Nicomachean Ethics* integrates both Plato and Aristotle into a harmonious whole to inform his own understanding of political philosophy, the Platonic role of the philosopher as both ruler of the city (philosopher-king) and an exile banished from the city as Socratic gadfly should not be overlooked. Al-Fārābī is instrumental in addressing the paradox of the philosopher who at once bears his own exclusivity as the paradigm of political authority yet also becomes displaced by the laws of the city.

Such paradoxes and problems presented by Aristotle and the rich tradition of Arabic interpretation are equally as important as his treatments and discussions. With this caveat in mind, students and scholars in the history of philosophy will be in a better position to explore the set of difficulties and challenges that philosophers in the Islamic world had to endure in order to make sense of Aristotle's works and to appropriate them into their own tradition. For example, al-Kindī in *On First Philosophy* (*Fī al-Falsafa al-ūlā*) calls a Muslim, "he who is not to be

ashamed of appreciating the truth and acquiring it wherever it comes from even if it comes from races distant and nations different from us." Al-Kindī not only invited Muslims to consider the truth of Aristotle's philosophy which predominated at that time, but to consider the difficulties and the challenges of confronting the truth and appropriating it into the Arabic tradition. Ultimately, this volume aims to affirm that one will not have a sufficient understanding of the development of Western philosophy and its different schools of thought without first considering the pervasive influence of Aristotle upon the Arabic tradition. While this volume does not aim to be an exhaustive attempt to capture the historical transmission and appropriation of Aristotle into the Arabic tradition, it does aim to suggest a process of reading and interpreting Aristotle through the lens of this tradition that retains the dynamic legacy of his thinking. The contributions included in this volume attempt to illuminate this legacy through their own scholarly engagement with Aristotle. Since Aristotle's thought has been remarkably successful in its transmission through so many distinct channels of interpretation in the Islamic world, our final aim is to encourage both students and scholars of ancient, medieval, and Islamic philosophy to take up this legacy for the sake of enriching the tradition of Aristotelian interpretation as a whole.

"Arisṭū ʿinda l-ʿArab", and beyond

"Account of Aristotle. The meaning [of his name] is "lover of wisdom" or, it is said, "the excelling, the complete", there also being given "the perfect, the excelling". [...] He was the master of eloquent style among the Greeks and among their excellent writers. After Plato, he was the most honored of their scholars, holding the highest rank in philosophy among the Ancients" (trans. Dodge).[1]

"The fourth philosopher is Aristotle. He is the first teacher (*al-muʿallim al-awwal*),[2] the seal of the ancient philosophers,[3] and the model of the learned men who followed their path. He organized philosophy and established it; he improved it and set it down accurately. He put logic at the beginning and prepared a foundation for all the other sciences. He thus became the medium through which the ancient philosophers were to benefit the future ones, and the means by which later philosophers were to procure the benefits of the earlier ones. Not only did he not restrict himself to pouring out upon later generations what the earlier ones had captured, but he even added to every kind [of knowledge] many times what they had produced, thereby rendering it more complete and more perfect. If it were not for him, subsequent philosophers would not have been guided toward the established practice of their predecessors — no, philosophy would not have been even outlined, nor would the knowledge of the essential natures [of things] among mankind have been even given a name. Because of this magnificent benefaction, then, he deserves the gratitude of those who came after him" (trans. Gutas).[4]

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[1] Ibn al-Nadīm, *K. al-Fihrist*, 246.26-247.3 Flügel = 307.10-16 Tajaddud (henceforth: F and T), trans. Dodge, 594-5. The *Kitāb al-Fihrist* (*Book of the Catalogue*) by Ibn al-Nadīm (d. 990 AD) is the most famous Arabic survey of the various fields of learning. Other examples of this literary genre include the *History of the Learned Men* (*Taʾrikh al-ḥukamāʾ*) by Ibn al-Qifṭī (d. 1248), the *Sources of Information on the Classes of Physicians* (*ʿUyūn al-anbāʾ fī ṭabaqāt al-aṭibbāʾ*) by Ibn Abī Uṣaybiʿa (d. 1270), and the *Clarification of the doubts about the names and subdivisions of the books* (*Kashf al-Ẓunūn ʿan asāmī l-kutub wa-l-funūn*) by Ḥajjī Khalīfa (Katib Celebi, d. 1658). The *K. al-Fihrist* has been edited twice (Ibn al-Nadīm, *Kitāb al-Fihrist*, mit Anmerkungen hrsg. von G. Flügel, I - II (= Rödiger - Müller), F.C.W. Vogel, Leipzig 1871-1872; R. Tajaddud, *Kitāb al-Fihrist li-n-Nadīm*, Marvi Offset, Tehran 1971, 1973[3]) and has been translated into English: B. Dodge, *al-Nadīm. The Fihrist, a tenth-Century Survey of Muslim Culture*, Columbia U. P., New York-London 1970.

[2] See G. Endress, "Der erste Lehrer. Der arabische Aristoteles und das Konzept der Philosophie im Islam", in U. Tworuschka (ed.), *Gottes ist der Orient. Gottes ist der Okzident*. Festschrift für A. Falaturi, Böhlau Verlag, Köln - Wien 1991, 151-81; Id., "L'Aristote Arabe. Réception, autorité et transformation du Premier Maître", *Medioevo* 23 (1997), 1-42; H. Daiber, "Salient trends of the Arabic Aristotle", in G. Endress and R. Kruk (eds), *The Ancient Tradition in Christian and Islamic Hellenism*. Studies on the Transmission of Greek Philosophy and Sciences dedicated to H.J. Drossaart Lulofs on his ninetieth birthday, CNWS, Leiden 1997, 29-41.

[3] The expression *khātim al-ḥukamāʾ al-qudamāʾ* is clearly reminiscent of Muḥammad's definition in the Qur'ān as the "seal of prophecy, *khātim al-nubuwwa*" (33:40).

[4] This passage comes from an anonymous gnomology labelled by its editor "The Philosophical Quartet" and containing four collections of sayings attributed to Pythagoras, Socrates, Plato, and Aristotle: D. Gutas, *Greek Wisdom Literature in Arabic Translation. A Study of the Graeco-Arabic Gnomologia*, New Haven 1975 (American Oriental Series, 60), 158.1-10; trans. Gutas, 159. The passage is ispired by al-Kindī, *Rasāʾil al-Kindī al-falsafiyya*, ed. M. 'A. Abū Rīda, Dār al- fikr al-'arabī, I-II, Cairo 1950-53, I, 97.6-103.5 = J. Jolivet - R. Rashed, *Œuvres philosophiques et scientifiques d'al-Kindī, vol. II. Métaphysique et cosmologie*. Brill, Leiden-Boston-Köln 1999, 9.8-13.16, English transl. by A. L. Ivry, *Al-Kindi's Metaphysics. A Translation of Yaʿqūb ibn Isḥāq al-Kindī's Treatise On First Philosophy (fī al-Falsafah al-ūlā)*, with Introduction and Commentary, SUNY Press, Albany 1974, 57-58.

These two accounts expand upon the image of the First Teacher, prominent both in the Arabic and Latin Middle Ages[5] and best exemplified in Dante's verses "vidi 'l maestro di color che sanno / seder tra filosofica famiglia. / Tutti lo miran, tutti onor gli fanno".[6] In what follows, I shall first outline the stages of the translations that put at the disposal of the Arab readers most of Aristotle's works, as well as the prominent features of the "Arabic Aristotle" created in this process; then, I shall try to narrow the focus to the Latin Middle Ages and its "Arabic Aristotle".

1. *The translations of Aristotle's works (and related items) and the shaping of the "Arabic Aristotle"*

The knowledge of Aristotle's thought and its influence on the rise and development of Arabic-Islamic philosophy obviously depend upon the "translation movement"[7] from Greek into Arabic.[8] The Arabic readership had access to the works of Aristotle that either were housed in the libraries and cultivated milieus of the conquered countries, or were made available in Baghdad through the double channel of the search for manuscripts[9] and of the arrival in the capital of the empire of translators who brought Greek works with them.[10] These materials, whatever their origin, were translated, thus fueling the rise of Arabic-Islamic philosophy. Predictably, they did not become available all at once; indeed, there is wide evidence that Aristotle's works were translated in various stages. Most of these translations have already been studied in depth[11] and the overall picture of the

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[5] Both labels are obviously conventional.

[6] *Commedia*, *Inf.* IV 131-133; for a complete list of Dante's citations, see the entry "Aristotele" by M. C. De Matteis in *Enciclopedia Dantesca*, Istituto della Enciclopedia Italiana, Biblioteca Treccani, Milano 2005, V, 573-81.

[7] This expression is widespread in scholarship: see F. E. Peters, *Aristotle and the Arabs: The Aristotelian Tradition in Islam*, New York U.P. - University of London Press, New York - London 1968, 57-67; L. E. Goodman, "The translation of Greek materials into Arabic", in M. J. L. Young, J. D. Latham, R. B. Serjeant (eds), *Religion, Learning and Science in the 'Abbasid Period*, Cambridge U. P., New York - Port Chester - Melbourne - Sydney 1990, 477-97; D. Gutas, *Greek Thought, Arabic Culture. The Graeco-Arabic Translation Movement in Baghdad and Early 'Abbāsid Society (2nd-4th/8th-10th centuries)*, Routledge, London 1998. Speaking of a "movement" implies, in particular for Gutas, that the translations were less the independent activity of individual scholars than a part of the cultural policy of the court and elite in early 'Abbāsid times.

[8] For an in-depth study of the translations from Greek into Arabic (philosophy and sciences), see G. Endress, "Die wissenschaftliche Literatur", in *Grundriss der Arabischen Philologie II. Literaturwissenschaft* hrsg. von H. Gätje, Reichert, Wiesbaden 1987, 400-530; *III. Supplement*, hrsg. von W. Fischer, Reichert, Wiesbaden 1992, 103-45. I have tried to sum up the main data about the translations of philosophical works in the entry "Greek Sources in Arabic and Islamic Philosophy", available at: http://plato.stanford.edu/entries/arabic-islamic-greek/

[9] Ibn al-Nadīm, *K. al-Fihrist*, 243.9-17 F = 304.2-9 T, trans. Dodge, 584; see G. Strohmaier, *Byzantinisch-arabische Wissenschaftsbeziehungen in der Zeit des Ikonoklasmus*, in H. Köpstein (ed.), *Studien zum 8. und 9. Jahrhundert in Byzanz*, Berlin 1983, 179-83, and P. S. van Koningsveld, "Greek Manuscripts in the Early Abbasid Empire: Fiction and Facts about their Origin, Translation and Destruction", *Bibliotheca Orientalis* 3-4 (1998), 345-71.

[10] The *K. al-Fihrist*, 243.18 F = 304.9-10 T, mentions Qusṭā ibn Lūqā (the "Constabulinus" known in the Latin Middle Ages as the author of the *De differentia spiritus et animae*): "Qusṭā ibn Lūqā al-Ba'albakkī also brought some material with him, which he translated, it also being translated for him" (trans. Dodge, 584-5).

[11] The outstanding entries on the various parts of the Aristotelian corpus available in the *Dictionnaire des Philosophes Antiques* publié sous la direction de R. Goulet avec une préface de P. Hadot, CNRS Editions, Paris 1989 → (henceforth: *DPhA*) provide also an up-to-date analysis of the Syriac and Arabic transmission of them. See in particular: H. Hugonnard-Roche - A. Elamrani-Jamal, "L'*Organon*.

reception of Aristotle in the Arabic-speaking world has been presented more than once;[12] therefore, an overview of the translations would be supernumerary, were it not intended to highlight the process of the reception of Aristotle's doctrines whose outcome is the "Arabic Aristotle" at stake here.

Early in the modern scholarship the fact imposed itself that already a century before the rise of Islam part of the Aristotelian corpus – more precisely, part of the *Organon* – had been translated into Syriac, both a language cognate of Arabic and the mother tongue of many scholars involved in the translations that took place in the formative period of Arabic-Islamic thought.[13]

That the Graeco-Syriac translations of Aristotle's logical writings were closely related to the scholastic tradition of late Antiquity is made evident by the works by Sergius of Resh'aynā (d. 536) that have come down to us. The doctor-in-chief of Resh'aynā (Theodosiopolis), a town on the east bank of the Euphrates,[14] Sergius had been educated in Alexandria both in philosophy and medicine. In addition to some thirty treatises by Galen,[15] he translated several philosophical and theological works. Both his translations (which include the pseudo-Aristotelian *De Mundo*[16] and

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Tradition syriaque et arabe", in *DPhA* I, 502-28; M. Aouad, "La *Rhétorique*. Tradition syriaque et arabe", in *DPhA* I, 455-72; J. Watt - M. Aouad, "La *Rhétorique*. Tradition syriaque et arabe (compléments)", in *DPhA Suppl*., pp. 219-23; H. Hugonnard-Roche, "La *Poétique*. Tradition syriaque et arabe", in *DPhA Suppl*., 208-18; H. Hugonnard-Roche, "*De Caelo*. Tradition syriaque et arabe", in *DPhA Suppl*., 283-94; M. Rashed, "*De Generatione et corruptione*. Tradition arabe", in *DPhA Suppl*., 304-14; P. Schoonheim, "*Météorologiques*. Tradition syriaque, arabe et latine", in *DPhA Suppl*., 324-8; R. Kruk, "La zoologie aristotélicienne. Tradition arabe", in *DPhA Suppl*., 329-34; A. Elamrani-Jamal, "*De Anima*. Tradition arabe", in *DPhA Suppl*., 346-58; R. Arnzen, "*De Anima*. Paraphrase arabe anonyme", in *DPhA Suppl*., 359-65; C. Di Martino, "*Parva Naturalia*. Tradition arabe", in *DPhA Suppl*., 375-8; A. Martin, "La *Métaphysique*. Tradition syriaque et arabe", in *DPhA* I, 538-34; C. Martini Bonadeo, "La *Métaphysique*. Tradition syriaque et arabe. Mise à jour bibliographique", in *DPhA Suppl*., 259-64; M. Zonta, "Les *Éthiques*. Tradition syriaque et arabe", in *DPhA Suppl*., 191-8.

[12] See in particular F. E. Peters, *Aristoteles Arabus. The Oriental Translations and Commentaries on the Aristotelian corpus*, Brill, Leiden 1968: Id., *Aristotle and the Arabs* (quoted above, n. 7); H. Daiber, "Die Aristotelesrezeption in der syrischen Literatur", in D. Kuhn - H. Stahl (eds), *Die Gegenwart des Altertums. Formen und Funktionen des Altertumsbezugs in den Hochkulturen der Alten Welt*, Forum, Heidelberg 2001, 327-45. Other recent surveys include my entry "Aristotle and Aristotelianism", in *Encyclopaedia of Islam Three*, Brill, Leiden-Boston 2008, 153-69, and M. Geoffroy, "The Arabic Aristotle", in H. Lagerlund (ed.), *Encyclopaedia of Medieval Philosophy. Philosophy between 500 and 1500*, Springer, Dordrecht - Heidelberg - London - New York 2011, 105-16.

[13] After the seminal studies by A. Baumstark, *Aristoteles bei den Syrern vom 5. bis 8. Jahrhundert. Syrische Texte, herausgegeben, übersetzt und untersucht. 1. (einziger) Band. Syrisch-arabische Biographien des Aristoteles. Syrische Kommentare zur ΕΙΣΑΓΩΓΗ des Porphyrios*, Leipzig 1900 (repr. Scientia Verlag, Aalen 1975) and Kh. Georr, *Les Catégories d'Aristote dans leurs versions syro-arabes. Édition de textes précédée d'une étude historique et critique et suivie d'un vocabulaire technique*, Institut Français de Damas, Beyrouth 1948, see S. Brock, "From Antagonism to Assimilation: Syriac attitudes to Greek Learning", in N. Garsoïan, T. Mathews, R. Thompson (eds), *East of Byzantium: Syria and Armenia in the Formative Period*, Dumbarton Oaks, Washington 1982, 17-34; H. Hugonnard-Roche, "Aux origines de l'exégèse orientale de la logique d'Aristote: Sergius de Reš'ayna († 536), médecin et philosophe", *Journal Asiatique* 277 (1989), 1-17; Id., "Note sur Sergius de Reš'ainā, traducteur du grec en syriaque et commentateur d'Aristote", in *The Ancient Tradition in Christian and Islamic Hellenism* (quoted above, n. 2), 121-43 (repr. in Id., *La logique d'Aristote du grec au syriaque. Études sur la transmission des textes de l'Organon et leur interprétation philosophique*, Vrin, Paris 2004, 123-42).

[14] Up-to-date overview in the entry by S. Fiori in Lagerlund (ed.), *Encyclopaedia of Medieval Philosophy* (see above, n. 12).

[15] R. Degen, "Galen im Syrischen: eine Übersicht über die syrische Überlieferung der Werke Galens", in V. Nutton (ed.), *Galen. Problems and Prospects*, London 1981, 131-66.

[16] Up-to-date overview by W. Raven, "*De mundo*. Tradition syriaque et arabe", in *DPhA Suppl*. (2003), 481-3.

a treatise by Alexander of Aphrodisias *On the Principles of the Universe*[17] lost in Greek) and his original writings (which include a treatise on the *Categories*[18] and another on the scope of Aristotle's works[19]) have been convincingly traced back to the tradition of the Neoplatonic commentaries on Aristotle's logical corpus, flourishing in the school of Ammonius son of Hermias.[20]

After Sergius, whose approach to Aristotle has been paralleled to that of his Latin contemporary Boethius,[21] the interest in Greek philosophy grew in the Syriac Christian communities. The first item of the so-called "enlarged *Organon*" of late Antiquity,[22] i.e., Porphyry's *Isagoge*, has been repeatedly translated into Syriac before and after the Islamic conquest.[23] Besides the logical Aristotle, also texts of "popular philosophy" were translated, meaning by this expression, as Sebastian Brock has it, "philosophical discourses with an ethical content, treatises of a general scientific nature, narrative texts, and collections of sayings of an ethical character".[24] As strange as it may seem to us, "Aristotle" and the Aristotelian tradition feature in the Graeco-Syriac popular philosophy. We have already seen that in the VIth century Sergius had translated the pseudo-Aristotelian *De mundo*,[25] cast in the form of a letter from Aristotle to Alexander. Coupled with Sergius' translation of Alexander's treatise *On the Principles of the Universe*,[26] this suggests that already before the advent of the Islamic rule on Graeco-Roman Syria, which was to happen a century later, the Syriac Aristotle was both the creator of logic and the preceptor of the king, instructing him about ethics and cosmology. Later on, the Syriac version of the pseudo-Aristotelian *De virtutibus et vitiis*[27] and mostly the rise of

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[17] G. Furlani, "Il trattato di Sergio di Rêsh'aynâ sull'universo", *Rivista trimestrale di studi filosofici e religiosi* 4 (1923), 1-22; D. R. Miller, *Sargis of Rešaina: On What the Celestial Bodies Know*, in R. Lavenant (ed.), *VI Symposium Syriacum*, Pontificio Istituto Orientale, Roma 1994 (Orientalia Christiana Analecta 247), 221-33.

[18] H. Hugonnard-Roche, "Les *Catégories* d'Aristote comme introduction à la philosophie dans un commentaire de Sergius de Reš'ainā", *Documenti e studi sulla tradizione filosofica medievale* 8 (1997), 339-63 (repr. in Id., *La logique d'Aristote du grec au syriaque*, quoted above, n. 13, 143-64).

[19] H. Hugonnard-Roche, "Comme la cigogne au désert: un prologue de Sergius de Reš'ainā à l'étude de la philosophie aristotélicienne en syriaque", in A. De Libera, A. Elamrani-Jamal, A. Galonnier (eds), *Langages et philosophie. Hommage à Jean Jolivet*, Vrin, Paris 1997, 79-97 (repr. in Id., *La logique d'Aristote du grec au syriaque*, 165-86); Id., "Sergius de Reš'ainā, commentaire sur les *Catégories* (A Théodore)", *ibid.*, 187-231.

[20] S. Brock, "The Syriac Commentary Tradition", in Ch. Burnett (ed.), *Glosses and Commentaries on Aristotelian Logical Texts. The Syriac, Arabic and Medieval Latin Traditions*, The Warburg Institute, London 1993, 3-18 (repr. in *From Ephrem to Romanos. Interactions between Syriac and Greek in Late Antiquity*, Variorum, Ashgate 1999); Hugonnard-Roche, "Les *Catégories* d'Aristote comme introduction à la philosophie", quoted above, n. 18.

[21] S. Pines, "A Parallel in the East to the *Logica Vetus*", in J. P. Beckmann *et alii* (ed.), *Philosophie im Mittelalter*, Hamburg 1987, 125-9 (repr. in *The Collected Works of Shlomo Pines, III. Studies in the History of Arabic Philosophy*, ed. by S. Stroumsa, Brill - The Magnes Press, Leiden - Jerusalem 1996, 262-66); H. Hugonnard-Roche, "Les traductions syriaques de l'*Isagoge* de Porphyre et la constitution du corpus syriaque de logique", *Revue d'Histoire des textes* 24 (1994), 293-312 (repr. in Id., *La logique d'Aristote du grec au syriaque*, 79-122).

[22] H. Hugonnard-Roche, "Le corpus philosophique syriaque aux VI^{e}-VII^{e} siècles", in C. D'Ancona (ed.), *The Libraries of the Neoplatonists*. Proceedings of the Meeting of the European Science Foundation Network "Late Antiquity and Arabic Thought", Brill, Leiden 2007, 279-91.

[23] H. Hugonnard-Roche, "Les traductions syriaques de l'*Isagoge* de Porphyre", quoted above, n. 21.

[24] S. Brock, "Syriac Translations of Greek Popular Philosophy", in P. Bruns (ed.) *Von Athen nach Bagdad. Zur Rezeption griechischer Philosophie von der Spätantike bis zum Islam*, Borengässer, Bonn 2003, 9-28.

[25] See above, n. 16.

[26] See above, n. 17.

[27] M. Cacouros, "Le traité pseudo-aristotélicien *De virtutibus et vitiis*", in *DPhA Suppl.* (2003), 506-46.

the Syriac tradition of the Alexander Romance[28] greatly contributed to the shaping of the image of Aristotle as the learned man who had laid down the foundations of science and, at one and the same time, as the wise imparting to the ruler his teaching about man and the cosmos — an image which famously belongs to the iconography of the Arabic Aristotle even in later ages.[29]

The conquest of Damascus in 635 and of the whole of Syria in 636 paved the way to the beginning of the translations from Greek and Syriac into Arabic. The Umayyads (r. 661-750) settled in Damascus, transforming it into the first capital of the Islamic empire; a chancellery (*dīwān*) was established, whose documents were written initially in Greek – the language of the officials who served the new rulers – and were translated into Arabic only later on.[30] A court civilization developed in Damascus,[31] providing the breeding ground out of which grew the interest in the Greek learning of the Muslim upper class. Even though the full-fledged "translation movement" belongs to a later stage of Islamic history, namely, the early ʻAbbāsid caliphate that we shall meet in a moment, the sources credit the first Umayyad caliph Muʻawiyya (r. 661-680) with having initiated the translations: interestingly enough, alchemy was the science he asked for,[32] and indeed alchemy features among the topics of the letters exchanged between "Aristotle" and "Alexander" in the style of the *specula principis*.[33] The details of the origins and transmission of the most famous *speculum*, namely, the *Sirr al-asrār* (*Secretum secretorum*)[34] are matter of debate among scholars, but its roots are acknowledged to lie in the Arabic

[28] On the *specula principis* see D. O'Meara - J. Shamp, *Miroirs de prince de l'Empire romain au IVe siècle*, Academic Press Fribourg, Fribourg 2006; on the Syriac version, see C. A. Ciancaglini, "Gli antecedenti del *Romanzo* siriaco di Alessandro", in R. B. Finazzi - A. Valvo (eds), *La diffusione dell'eredità classica nell'età tardoantica e medievale. Il 'Romanzo di Alessandro' ed altri scritti*, Edizioni dell'Orso, Alessandria 1998, 55-93; K. van Bladel, "The Syriac Sources of the Early Arabic Narratives of Alexander", in H. P. Ray - D. T. Potts (eds), *Memory as History: The Legacy of Alexander in South Asia*, Aryan International, New Delhi 2007, 54-75; see also H. Hugonnard-Roche, "Éthique et politique au premier âge de la tradition syriaque", *Mélanges de l'Université Saint-Joseph* 57 (2004), 99-119.

[29] As for instance in the well-known illuminated MS of Ibn Bukhtishū's *K. al-ḥayawān*, London, British Library or. 2784, f. 96 r.

[30] *K. al-Fihrist*, 242.25-30 F = 303.19-22 T; see G. Fowden, *Quṣayr ʻAmra. Art and the Umayyad elite in late Antique Syria*, University of California Press, Berkeley - Los Angeles - London 2004, 265-72.

[31] G. von Grunebaum, "The Sources of Islamic Civilization", *Der Islam* 46 (1970), 1-54, points to the fascination of the new environment the Arab conquerors were exposed to once they entered Syria.

[32] *K. al-Fihrist* 242.8-11 F = 303.4-6 T. The author of the *K. al-Fihrist*, Ibn al-Nadīm, remarks that "This was the first translation in Islam from one language into another" (trans. Dodge, 581).

[33] Ed.: ʻA. Badawī, *al-Uṣūl al-yūnāniyya li-l-naẓariyyāt al-siyāsa fī l-Islām*, Cairo 1954, 67-177; see the overview by M. Zonta, "Pseudo-Aristote. *Secretum secretorum*", in *DPhA Suppl.*, 648-51; after this date, see K. van Bladel, "The Iranian Characteristics and Forged Greek Attributions in the Arabic *Sirr al-asrār* (*Secret of the Secrets*)", *Mélanges de l'Université Saint-Joseph* 57 (2004), 151-72; G. Fowden, *Pseudo-Aristotelian Politics and Theology in Universal Islam*, in S. M. R. Darbandi - A. Zournatzi, *Ancient Greece and Ancient Iran. Cross-Cultural Encounters*, 1st International Conference Athens, 11-13 November 2006, National Hellenic Research Foundation, Athens 2008, 65-81; Di Branco, *Storie Arabe di Greci e di Romani*, Plus, Pisa 2009 (Greco, Arabo, Latino. Le vie del sapere. Studi, 1).

[34] For concurrent views on the origins of the *Secretum secretorum* see M. Grignaschi, "Les *Rasā'il ʻAriṣṭāṭālīsa ʻilā-l-Iskandar* de Sālim Abū-l-ʻAlā' et l'activité culturelle à l'époque omayyade", *Bulletin d'Études Orientales* 19 (1965-66), 7-83; Id., "Le roman épistolaire classique conservé dans la version arabe de Sālim Abū l-ʻAlā' ", *Le Muséon* 80 (1967), 211-64; Id., "L'origine et les métamorphoses du *Sirr al-asrār*", *Archives d'Histoire doctrinale et littéraire du Moyen Age* 43 (1976), 7-112; M. Manzalaoui, "The pseudo-Aristotelian *Kitāb Sirr al-asrār*. Facts and Problems", *Oriens* 23-24 (1970-71), 147-257.

translation of the epistolar Romance of Alexander, made under the Umayyad caliph Hishām ibn ʻAbd al-Mālik (r. 724-43).[35]

Under the Umayyads, the Christians of Syria continued to translate Aristotle's logical works.[36] For what such generalizations are worthy of, one may venture to say that two distinct traditions of learning under the aegis of Aristotle, both rooted in late Antiquity, developed in Umayyad times. On the one hand, there is the logical Aristotle heir to the school of Alexandria: this tradition was carried on by the Christian doctors and clerics (often bishops) who continued, even under the ʻAbbāsids, to translate parts of the *Organon* and to comment upon them. This tradition is best exemplified by the exhaltation of Aristotle written by a monk, David bar Paulos, to whom Sebastian Brock has drawn attention in his capital article "From Antagonism to Assimilation".

> David, who was born near Mosul in the mid-eighth century, may thus provide an important link between his fellow Syrian Orthodox predecessors, working mainly in north Syria, and the East Syrian scholars under the Abbasids [...]. David's letters show him to be a scholar versed in several fields of secular learning, and, although it is difficult to ascertain the extent of his knowledge of the Greek language, there can be no doubt about his enthusiasm for Greek learning:
> Above all the Greeks is the wise Porphyry held in honor,
> the master of all sciences, after the likeness of the godhead.
> In all fields of knowledge did the great Plato too shine out,
> and likewise subtle Democritus and the glorious Socrates,
> the astute Epicurus and Pythagoras the wise;
> so too Hippocrates the great, and the wise Galen,
> but exalted above all these is Aristotle,
> surpassing all in his knowledge, both predecessors and successors:
> entire wisdom did he contain in his books and writings,
> making philosophy a single body, perfect and complete
> What was written concerning the wise Solomon found its fulfilment in him:
> "none in any age was like he" (trans. Brock).[37]

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[35] The Arabic epistolary romance has been edited: M. Maróth, *The Correspondence between Aristotle and Alexander the Great. An anonymous Greek novel in letters in Arabic translation*, The Avicenna Institute of Middle Eastern Studies, Piliscsaba 2006 (Documenta et Monographiae 5), criticized by D. Gutas, "On Graeco-Arabic Epistolary Novels", *Middle Eastern Literatures* 12, 2009, 59-70. For a comprehensive and balanced account see Di Branco, *Storie arabe di Greci e di Romani* (quoted above, n. 33).

[36] On the broader context see J. L. Boojamra, "Christianity in Greater Syria: Surrender and Survival", *Byzantion* 67 (1997), 148-78; L. I. Conrad, "*Varietas syriaca*. Secular and scientific culture in the Christian communities of Syria after the Arab conquest", in G. J. Reinink - A. C. Klugkist (eds), *After Bardaisan. Studies on continuity and change in Syriac Christianity in honour of professor Han J. W. Drijvers*, Peeters, Leuven 1999 (Orientalia Lovaniensia Analecta 89), 85-105. On the continuity of the Aristotelian studies, especially on logic, see Brock, "From Antagonism to Assimilation" (quoted above, n. 13); Id., "The Syriac Commentary Tradition" (quoted above, n. 20); H. Hugonnard-Roche, "Jacques d'Edesse et sa réception d'Aristote", in *La logique d'Aristote du grec au syriaque* (quoted above, n. 13) 39-55. In particular on Paul the Persian see D. Gutas, "Paul the Persian on the Classification of the Parts of Aristotle's Philosophy: a Milestone between Alexandria and Bagdad", *Der Islam* 60 (1983), 231-67; Id., "The Starting Point of Philosophical Studies in Alexandrian and Arabic Aristotelianism", in W. W. Fortenbaugh, P. Huby, A. A. Long (eds), *Theophrstus of Eresus. On his Life and Work*, Rutgers, New Brunswick - Oxford 1985, 115-23; H. Hugonnard-Roche, "Le traité de logique de Paul le Perse: une interprétation tardo-antique de la logique aristotélicienne en syriaque", *Documenti e studi sulla tradizione filosofica medievale* 11 (2000), 59-82 (repr. in *La logique d'Aristote du grec au syriaque*, 233-54).

[37] Brock, "From Antagonism to Assimilation" (quoted above, n. 13), 25; the source is *Egratheh d-Dawid bar Paulos*, ed. P. Y. Dolapönü, Mardin 1953, 21-23 (see Brock, "From Antagonism to Assimilation", 32 n. 80).

On the other hand, there is the Aristotle of the court, the wise instructing the prince on the secrets of nature, heir to the tradition of the Alexander romance. In the so-called *Letter of the Golden House*, which is nothing else than the Arabic version of the pseudo-Aristotelian *De Mundo* cast in the form of an epistolary romance,[38] "Aristotle" features as writing back to Alexander, who had described in a letter to his mentor the marvels he saw in upper India. The comments are added by a later historian, al-Mas'ūdī (d. 956), but the *Letter of the Golden House* was available already in early 'Abbāsid times, as we shall see below.

> "I write to you, O King, to warn you [...] lest you admire a thing made by weak hands, though skill, in short days and a negligible duration of time. I would rather, O King, that you turn your eyes to what is above and beneath you, at your right and at your left: the sky, the rocks and mountains, the seas, the marvels and phenomena which they contain, the lofty edifice which was wrought by no iron tools and which cannot be breached by machines of siege, and which was not put up by weak and frail bodies in finite time". He then goes on describing, in the rest of the letter, the countries, seas, spheres, stars, meteorological phenomena and other things which occur in the atmosphere. All this, together with letters by Aristotle to Alexander concerning the behaviour which he should adopt in matters of religion and kingship, and other subjects, was mentioned by us in our book on the Branches of Knowledge and Events of Past Ages; this letter is easily available. (trans. Stern)[39]

Both traditions of learning — that of the school and that of the court, one might say — contributed also to the knowledge of Aristotle's biography in the Muslim world: it has been shown by D. Gutas that the Arabic accounts (which include not only his life, but also his testament), are drawn from Ptolemy's *Life of Aristotle* (a writing tracing back to the IVth century, lost in Greek but preserved in Arabic), from materials related to the Alexandrian school of Ammonius son of Hermias, and from the epistolary romance mentioned above.[40]

These two Aristotelian traditions, that of the late antique schools and that of the *specula principis* — different from one another even though not incompatible with one another — are especially prominent in the formative period of Arabic-Islamic philosophy, namely, under the first 'Abbāsid caliphs. The movement and events labelled as the " 'Abbāsid revolution"[41] put an end to the Umayyad dynasty in 750, and the ruling 'Abbāsids settled soon in the new capital of the Empire, Baghdad, founded in 762-63 by al-Manṣūr (r. 754-75). The ancient sources mention al-Manṣūr's secretary Ibn al-Muqaffa', a convert from a Zoroastrian family and a

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[38] This text has been discovered by R. Walzer, "Aristotelesübersetzungen in Istanbul", *Gnomon* 10 (1934), 277-80 (repr. in Id., *Greek into Arabic. Essays on Islamic Philosophy*, Cassirer, Oxford 1963, 137-41), and has been studied by S. M. Stern, "The Arabic Translations of the pseudo-Aristotelian Treatise *De Mundo*", *Le Muséon* 78 (1964), 187-204 (repr. in Id., *Medieval Arabic and Hebrew Thought* ed. by F. W. Zimmermann, Variorum Reprints, London 1983); see also Id., "A Third Arabic Translation of the Pseudo-Aristotelian Treatise *De Mundo*", *Le Muséon* 88 (1965), 381-93 (repr. *ibid.*).

[39] Stern, "The Arabic Translations of the pseudo-Aristotelian Treatise *De Mundo*", 198.

[40] D. Gutas, "The spurious and the authentic in the Arabic Lives of Aristotle", in J. Kraye, W. F. Ryan and C. B. Schmitt (eds), *Pseudo-Aristotle in the Middle Ages. The 'Theology' and other texts*, London 1986, 15-36.

[41] H. Kennedy, *The Early Abbasid Caliphate*, Croom Helm, London 1981, in part. chapter 2, "The Origins of the Abbasid Revolution"; Id., *When Baghdad ruled the Muslim World. The Rise and Fall of Islam's Greatest Dynasty*, Da Capo Press, Cambridge (MA) 2004; P. Crone - M. Hinds, *God's Caliph. Religious Authority in the First Centuries of Islam*, Cambridge U. P., Cambridge 1986.

translator from Persian, in loose relationship with "abridgments and compilations (*mukhtaṣarāt wa-jawāmīʿ*)" of the *Categories* and *De Interpretatione*,[42] but this work is extant and edited,[43] thus allowing scholars to realize that it includes also a compendium of the *Prior Analytics*. The late antique legacy in this collection of logical works is made evident by the very fact that it begins by an abridgment of Porphyry's *Isagoge*.[44] The successor of al-Manṣūr, al-Mahdī (r. 775-85) had the *Topics* translated for him,[45] and also the most ancient Arabic translation of the *Rhetoric*[46] has been convincingly traced back to the VIIIth century,[47] a fact which comes as a confirmation of the close relationship between the earliest Arabic translations of Aristotle's logical works and the school tradition of late Antiquity, because in Alexandria the *Rhetoric* and *Poetics* were dealt with as parts of the *Organon*.[48] Finally, the ancient sources mention a translation of the *Physics* made under the reign of Hārūn al-Rashīd (r. 786-809), which however is lost to us.[49] This means that at the eve of the most intense effort of assimilation of the Greek heritage, which began in the IXth century, the interest in Aristotle's doctrine was not confined to logic, but included also the knowledge of the cosmos and its principles — "the lofty edifice which was wrought by no iron tools", as the *Letter of the Golden House* says.

The caliph whose name is most often cited in relationship with the translations is the successor of Hārūn al-Rashīd, al-Ma'mūn (r. 813-833).[50]

> Mention of the reasons why books on philosophy and other ancient sciences became plentiful in the country. One of the reasons for this was that al-Ma'mūn saw in a dream the likeness of a man white in color, with a ruddy complexion, broad forehead, joined eyebrows, bald head, bloodshot eyes, and good qualities sitting on his bed. Al-Ma'mūn related, "It was as though I was in front of him, filled with fear of him. Then I said, 'Who are you?' he replied, 'I am Aristotle'. Then I was delighted with him and said, 'Oh sage, may I ask you a question?' He said, 'Ask it'. Then I asked, 'What is good?' He replied, 'What is good in the mind'. I said again, 'Then what is next?' He answered, 'What is good in the law'. I said, 'Then what more?' He answered, 'More? There is no more'." According to another quotation: "I [al-Ma'mūn] said, 'Give me

[42] *K. al-Fihrist*, 248.27 F = 309.9 T and 249.4 F = 309.14 T.

[43] M. N. T. Dānish Pazūh, *Manṭiq Ibn al-Muqaffaʿ*, Anjuman-i Shāhanshāhī Falsafah-i Tihrān, Tehran 1978.

[44] F. Gabrieli, "L'opera di Ibn al-Muqaffaʿ " *Rivista degli Studi Orientali* 13 (1932), 197-247 and P. Kraus, "Zu Ibn al-Muqaffaʿ ", *Rivista degli Studi Orientali* 14 (1934), 1-20 (repr. in Id., *Alchemie, Ketzerei, Apokryphen Apokryphen im frühen Islam*. Gesammelte Aufsätze hrsg. u. eingeleitet von R. Brague, Olms, Hildesheim - Zürich - New York 1994) challenged the authorship of Ibn al-Muqaffaʿ and attributed the compendium to his son, Muḥammad ibn ʿAbdallāh al-Muqaffaʿ, whose *floruit* was under the reign of al-Ma'mūn; however Dānish Pazūh, *Manṭiq Ibn al-Muqaffaʿ* (quoted above, n. 43) attributes the work to the father: see Hugonnard-Roche - Elamrani Jamal, "L'*Organon*. Tradition syriaque et arabe" (quoted above, n. 11), 510.

[45] S. Brock, "Two letters of the Patriarch Timothy from the late eighth century on translations from Greek", *Arabic Sciences and Philosophy* 9 (1999), 233-46; cf. *K. al-Fihrist*, 249.18 F = 309.28 T, and see Hugonnard-Roche - Elamrani Jamal "L'*Organon*. Tradition syriaque et arabe", 525. On the broader context see V. Berti, *Vita e studi di Timoteo I, patriarca cristiano di Baghdad. Ricerche sull'epistolario e sulle fonti contigue*, Peeters, Leuven 2009 (Cahiers de Studia Iranica, 41).

[46] ʿA. Badawī, *Aristotelis Rhetorica in versione arabica vetusta*, Maktabat al-Naḥḍa al-miṣriyya, Cairo 1959; M. C. Lyons, Aristotle's *Ars Rhetorica.* A New Edition with Commentary and Glossary, Pembroke Arabic texts, Cambridge 1982.

[47] See Aouad, "La *Rhétorique*. Tradition syriaque et arabe" (quoted above, n. 11), 456-7.

[48] See above, n. 22.

[49] *K. al-Fihrist*, 244.5-6 F = 304.27 T.

[50] D. Sourdel, "La politique religieuse du calife ʿabbaside al-Ma'mūn", *Revue des Études Islamiques* 30 (1962), 27-48; for a valuable overview see M. Cooperson, *Al-Ma'mun*, Oneworld, Oxford 2005.

> something more!' He [Aristotle] replied, 'Whosoever gives you advice about gold, let him be for you like gold; and for you is oneness [of Allāh]". This dream was one of the most definite reasons for the output of books (trans. Dodge).[51]

This story is clearly reminiscent of the epistolary romance, with its "Aristotle" imparting admonitions to the king.[52] It is generally agreed that the "dream of al-Ma'mūn" should not be taken at face value, as a record of the caliph's interest in the Greek legacy, even though there is no scholarly consensus on the origin and purposes of the forgery.[53] What is sure is that the *Letter of the Golden House* was read to al-Ma'mūn,[54] and it is noteworthy that the list of Aristotle's works translated in his times and even in close relationship with his court[55] matches that of the topics dealt with in the *Letter*. I mentioned al-Ma'mūn's court, and an explanation is in order here. A turning point in the scholarship on the Graeco-Arabic translations is the discovery made by Gerhard Endress[56] that some of these translations share in linguistic features pointing to a common origin. Endress has convincingly shown that they sprung from a circle of scientists and translators interested in the "sciences of the Ancients",[57] a circle named by Endress after its leader: al-Kindī (d. 870 ca), the first philosopher to write in Arabic,[58] the philosopher of al-Ma'mūn's

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[51] *K. al-Fihrist*, 243.1-9 F = 303.23-304.2 T. The story is recorded with slight differences also in other sources that have been compared with one another by Van Koningsveld, "Greek Manuscripts in the Early Abbasid Empire" (quoted above, n. 9) and D. Gutas, "The 'Alexandria to Baghdad' complex of narratives. A contribution to the study of philosophical and medical historiography among the Arabs", *Documenti e studi sulla tradizione filosofica medievale* 10 (1999), 155-93.

[52] According to al-Mas'ūdī in the text quoted above, n. 39, "Aristotle" gave to Alexander instructions about "the behaviour which he should adopt in matters of religion and kingship", and so does in the dream "Aristotle" to his new pupil, the caliph of the Islamic empire.

[53] The different interpretations by Van Konigsveld and Gutas (see n. 9 and 51) cannot be summarized here.

[54] See Stern, "The Arabic Translations of the pseudo-Aristotelian Treatise *De Mundo*" (quoted above, n. 38), 197: "Al-Marwazī said: I recited to al-Ma'mūn the letter which Aristotle wrote to him in reply to Alexander's account of his conquests, the riches which he acquired and which were too difficult for him to carry, and the golden house which he saw in India and which excited his admiration. Aristotle wrote in that letter: "I see that you admire a fabric made by men's hand and omit to express your admiration for that lofty roof above you, and the art of Him who has adorned it with the stars and arranged it according to the most profound wisdom."

[55] The princely library, known as the "Bayt al-ḥikma" (House of Wisdom) has been connected in various ways to the translation movement: see Endress, "Die wissenschaftliche Literatur" (quoted above, n. 8), 423-9: M.-G. Balty-Guesdon, "Le Bayt al-Ḥikma", *Arabica* 39 (1992), 131-50; F. Micheau, "Les institutions scientifiques dans le Proche-Orient médiéval", in *Histoire des sciences arabes*, *3. Technologie, alchimie et sciences de la vie*, sous la direction de R. Rashed, Éditions du Seuil, Paris 1997, 233-54; K. van Bladel - D. Gutas, *s. v.* "Bayt al-Ḥikma", in *Encylopaedia of Islam* Third Edition, Brill, Leiden 2009.

[56] G. Endress, *Proclus Arabus. Zwanzig Abschnitte aus der Institutio Theologica in arabischer Übersetzung*, Imprimerie Catholique, Wiesbaden-Beirut 1973.

[57] On the distinction between the Qur'anic sciences (*'ulūm al-sharī 'a*, "sciences of the religion", or *al-'ulūm al-naqliyya al-waḍ'iyya*, "the traditional, conventional sciences") and the philosophical and scientific fields of knowledge (*'ulūm al-ḥikmiyya al-falsafiyya*), also named the "sciences of the Ancients" (*al-'ulūm al-qadīma*) see Endress, "Die wissenschaftliche Literatur" (quoted above, n. 8), 400 and n. 2, 3.

[58] G. Endress, "The Circle of al-Kindī. Early Arabic Translations from the Greek and the Rise of Islamic Philosophy", in Endress - Kruk (eds), *The Ancient Tradition in Christian and Islamic Hellenism* (quoted above, n. 2), 43-76; see also Id., "Building the Library of Arabic Philosophy. Platonism and Aristotelianism in the Sources of al-Kindī", in D'Ancona (ed.), *The Libraries of the Neoplatonists* (quoted above, n. 22), 319-50.

court.[59] Let's recall now that the *Letter* contained, after the admonition to admire the cosmos more than the marvels made by men's hands, an account of "the countries, seas, spheres, stars, meteorological phenomena and other things which occur in the atmosphere",[60] and indeed among the translations made within the circle of al-Kindī we find the *De Caelo*,[61] a compendium of the *Meteorologica*,[62] the *De generatione animalium* and *De partibus animalium*, merged together into the *Book of Animals*.[63] Also, a translation of the first four books of the *Physics* is attributed by the ancient sources to a scholar who held scientific relationships with al-Kindī, Qusṭā ibn Lūqā,[64] while one of the translators of the circle of al-Kindī, the Syriac Christian Ibn Nā'ima al-Ḥimṣī, is credited with the translation of the last four.[65] This does not mean that the scholars of this milieu paid no attention to Aristotle's logical works; indeed, a translation of the *Sophistici Elenchi* made by the same Ibn Nā'ima al-Ḥimṣī is recorded in the sources,[66] and there is also a tiny trace of a translation of the *Prior Analytics*.[67] However, a prominent feature of this group is the interest in Aristotle's cosmology (*Physics*, *De Caelo* and *Meteorologica*) as well as in his account of the laws of nature within the world of coming-to-be and passing away (*Book of the Animals*).

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[59] Some of Kindī's works are dedicated to al-Ma'mūn, and he was appointed tutor to a son of his successor al-Mu'taṣim. On Kindī's place in the court see F. Rosenthal, "Al-Kindī als Literat", *Orientalia* 2 (1942), 262-88; for an overview see G. N. Atiyeh, *Al-Kindī: the Philosopher of the Arabs*, Islamic Research Institute, Rawalpindi 1966, and P. Adamson, *Al-Kindī*, Oxford U. P., Oxford 2006.

[60] See above, n. 39.

[61] 'A. Badawī, *Arisṭūṭālīs fī l-Samā' wa-l-Athār al-'ulwiyya*, Maktabat al-Nahḍa al-miṣriyya, Cairo 1961. According to the *K. al-Fihrist*, the translation was made by Ibn al-Biṭrīq (250.28 F = 311.12 T), one of the scholars of the Kindī's circle (D. M. Dunlop, "The translations of al-Biṭrīq and Yaḥyā (Yuḥannā) b. al-Biṭrīq", *Journal of the Royal Asiatic Society*, 1959, 140-50). However, what has come down to us is not this translation, but a reworking of it: G. Endress, *Die arabischen Übersetzungen von Aristoteles' Schrift De Caelo*, Inaugural-Dissertation, Bildstelle der J. W. Goethe Universität, Frankfurt a. M. 1966, in part. 31-86; Id., "Averroes' *De caelo*. Ibn Rushd's Cosmology in his commentaries on Aristotle's *On the Heavens*", *Arabic Sciences and Philosophy* 5 (1995), 9-49; H. Hugonnard-Roche, "*De caelo*. Tradition syriaque et arabe", quoted above, n. 11.

[62] Two earlier editions of this compendium (Badawī, *Arisṭūṭālīs fī l-Samā' wa-l-Athār al-'ulwiyya*, quoted above, n. 61, and C. Petraitis, *The Arabic Version of Aristotle's Meteorology. A Critical Edition with an Introduction and Greek-Arabic Glossaries*, Dar El-Machreq, Beyrouth 1967) have been superseded by P. L. Schoonheim, *Aristotle's Meteorology in the Arabico-Latin Tradition*, Brill, Leiden 2000 (Aristoteles Semitico-Latinus, 12). See the review of Petraitis' edition by G. Endress, *Oriens* 23 (1974), 497-509 and Schoonheim, "*Météorologiques*. Tradition syriaque, arabe et latine" (quoted above, n. 11).

[63] The Arabic translation of the *K. al-Ḥayawān*, "Book of Animals" (i.e., a selection from *De gen. an.* and *De part. an.*) is attributed to Ibn al-Biṭrīq (251.26 F = 312.8 T); the translation is extant (J. Brugman - H. J. Drossaart Lulofs, *Aristotle. Generation of the Animals. The Arabic translation commonly ascribed to Yāḥyā ibn al-Biṭrīq*, Brill, Leiden 1971; R. Kruk, *The Arabic version of Aristotle's Parts of Animals: book XI-XIV of the Kitāb al-Ḥayawān*, Royal Netherlands Academy of Arts and Sciences, Amsterdam-Oxford 1979); see Kruk, "La zoologie aristotélicienne. Tradition arabe" (quoted above, n. 11).

[64] See above n. 10. Both this translation and that of Books V-VIII of the *Physics* attributed to Ibn Nā'ima al-Ḥimṣī (see the following note) were accompanied by that of Philoponus' commentary, according to the *K. al-Fihrist*, 251.18 F = 311.1 T.

[65] For an overview of Aristotle's *Physics* in Arabic see P. Lettinck, *Aristotle's Physics and its Reception in the Arabic World, with an edition of the unpublished parts of Ibn Bājja's Commentary on the Physics*, Brill, Leiden - New York – Köln 1994 (Aristoteles Semitico-Latinus, 7), and Id., "Aristotle's 'Physical' Works in the Arabic World," *Medioevo* 27 (2002), 22-52.

[66] A translation is attributed to Ibn Nā'ima al-Ḥimṣī by the *K. al-Fihrist* (249.26-28 F = 310.9-10 T); this is one of the three translations of the *Soph. El.* which are extant and edited ('A. Badawī, *Manṭiq Arisṭū. I-III. K. al-Maqūlāt*, Wikālat al-Maṭbū'a - Dār al-qalam, al-Kuwayt - Beirut 1980). The dossier of the Arabic *Soph. El.* is complicated: see Hugonnard-Roche - Elamrani Jamal, "L'*Organon*. Tradition syriaque et arabe" (quoted above, n. 11), 526-8.

[67] See Endress, "The Circle of al-Kindī." (quoted above, n. 58), 58.

Even more decisive for the entire history of Arabic-Islamic philosophy was the translation of the *Metaphysics*, made on the demand of al-Kindī.[68] This work was so important for him that he wrote a treatise of his own, following in the footsteps of the *Metaphysics* as for the subject matter and title – *On First Philosophy*[69] – even though the flow of the argument reflects the eclectic sources that al-Kindī tried to combine in one and the same account.[70] Another focus of the circle of al-Kindī was Aristotle's doctrine of the soul: not only the *Parva Naturalia* were translated,[71] but also the *De Anima* was known to some extent, namely, through a compendium of clear Neoplatonic bent.[72]

An interesting feature of some of the translations produced within this milieu is the reworking, that takes the form of a selection and at times transposition of parts. The creation of the *K. al-ḥayawān* out of the *De Generatione animalium* and *De Partibus animalium*, as well as that of the *K. al-ḥiss wa-l-maḥsūs* out of the *Parva naturalia* plus other sources bear witness of this,[73] as does the transposition of parts within the *Meteorologica.*[74] In the same vein, it has been advanced that the puzzling "inversion" of the first two books of Aristotle's *Metaphysics* in the Arabic version might reflect the fact that this circle priviledged those parts of the *Metaphysics* that suited better the image of an Aristotle who, instead of harshly criticizing Plato, was his faithful pupil and exegete.[75] However, no better example of such reworkings can be given than the so-called *Theology of Aristotle*, the most famous pseudo-Aristotelian text of

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[68] *K. al-Fihrist*, 251.27-28 F = 312.14 T. This translation is available through the lemmata of Averroes' *Great Commentary* on the *Metaphysics* for most books (Averroès, *Tafsir Ma ba'd at-tabi'at*, Texte arabe inédit établi par M. Bouyges, Imprimerie Catholique, Beyrouth 1938-1952); see Martin, "La *Métaphysique*. Tradition syriaque et arabe" and Martini Bonadeo, "La *Métaphysique*. Tradition syriaque et arabe. Mise à jour bibliographique", both quoted above, n. 11.

[69] See above, n. 4.

[70] Chiefly Philoponus' *De Aeternitate mundi contra Proclum* and Proclus' *Elements of Theology*, both translated into Arabic in this span of time (see the overviews on the translations quoted above, n. 8).

[71] An adaptation of various parts of the *Parva naturalia* plus other sources under the general heading of *K. al-ḥiss wa-l-maḥsūs* (*De Sensu et sensato*) has been discovered by H. Daiber, "Salient trends of the Arabic Aristotle" (quoted above, n. 2), 36-41. The edition by R. E. Hansberger, *The Transmission of Aristotle's Parva Naturalia in Arabic*, is forthcoming.

[72] R. Arnzen, *Aristoteles' De Anima. Eine verlorene spätantike Paraphrase in arabischer und persischer Überlieferung*. Arabischer text nebst Kommentar, Quellengeschichtlichen Studien und Glossaren, Brill, Leiden - New York - Köln 1998 (Aristoteles Semitico-Latinus, 9); see also Arnzen, "*De Anima.* Paraphrase arabe anonyme", quoted above, n. 11, and M. Sebti, "Une copie inconnue d'une paraphrase anonyme conservée en arabe du *De Anima* d'Aristote. Le MS Ayasofia 4156", in D'Ancona (ed.), *The Libraries of the Neoplatonists* (quoted above, n. 22), 399-414.

[73] See above, n. 63 and 71.

[74] Endress, reviewing Petraitis' edition of the Arabic translation of the *Meteorologica* (see above, n. 62), 505-6, calls attention on the transposition of parts, as well as on the monotheistic adaptations of Aristotle's wording and thought.

[75] C. Martini, "La tradizione araba della *Metafisica* di Aristotele. Libri α-A", in C. D'Ancona - G. Serra (eds), *Aristotele e Alessandro di Afrodisia nella tradizione araba*, Il Poligrafo, Padova 2002 (Subsidia Mediaevalia Patavina, 3), 75-112. On the image of an "Aristotle" who instead of criticizing Plato drives his philosophy to completion see G. Endress, "La 'Concordance entre Platon et Aristote', l'Aristote arabe et l'émancipation de la philosophie en Islam médiéval", in B. Mojsisch - O. Pluta (eds), *Historia Philosophiae Medii Aevi. Studien zur Geschichte der Philosophie des Mittelalters*, Grüner, Amsterdam - Philadelphia, 1991, 237-57 and my "The Topic of the 'Harmony between Plato and Aristotle': Some examples in early Arabic Philosophy", in A. Speer - L. Wegener (eds), *Wissen über Grenzen, Arabisches Wissen und lateinisches Mittelalter*, de Gruyter, Berlin – New York 2006 (Miscellanea Mediaevalia 33), 379-405.

the entire Arabic-Islamic philosophy,[76] which was produced within the circle of al-Kindī out of Plotinus' *Enneads* IV-VI.[77] The translation of selected Plotinian treatises was made by Ibn Nā'ima al-Ḥimṣī, and the Arabic text was "corrected" by al-Kindī himself.[78] The order of Plotinus' treatises as they appear in the *Enneads*, and at times even the order of the parts within each treatise, is changed with respect to the Greek original; the adaptations to the monotheistic creed either of the translator (the Christian Ibn Nā'ima al-Ḥimṣī), or of the intended audience (the Muslim Aḥmad, son of the caliph al-Mu'taṣim), or both, are countless; the new text resulting from these adaptations is presented as being the "Book by Aristotle the Philosopher, called in Greek *Uthūlūjiyyā*, i.e., the discourse about God's sovereignty".[79] Endorsing a passage where Plotinus speaks in the first person, "Aristotle" presents the following account of his separation from sense-perception and ascent to the intelligible realm, until he reached the direct vision of the divine light:

> Often have I been alone with my soul and have doffed my body and laid it aside and become as if I were naked substance without body, so as to be inside myself, outside all other things. Then do I see within myself such beauty and splendour as I do remain marvelling at and astonished, so that I know that I am one of the parts of the sublime, surpassing, lofty, divine world, and possess active life. When I am certain of that, I lift my intellect up from that world into the divine world and become as if I were placed in it and cleaving to it, so as to be above the entire intelligible world, and seem to be standing in that sublime and divine place. And there I see such light and splendour as tongues cannot describe nor ears comprehend. (trans. Lewis)[80]

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[76] Aristotle is credited with a *Theology* in the *K. al-Fihrist*, 252.4 F = 312.20 T, and one of the most famous passages of the *pseudo-Theology* (see below, n. 78) is quoted by al-Farabī as being Aristotelian (al-Fārābī. *L'armonia delle opinioni dei due sapienti, il divino Platone e Aristotele*, Introduzione, testo arabo, traduzione e commento di C. Martini Bonadeo, prefazione di G. Endress, Plus, Pisa 2008 [Greco, arabo, latino. Le vie del sapere, 3], 74.5-15, English trans. Alfarabi, *The Harmonization of the Two Opinions of the Two Sages: Plato the Divine and Aristotle*, in Alfarabi, *The Political Writings. Selected Aphorisms and Other Texts*, translated and annotated by Ch. Butterworth, Cornell University Press, Ithaca and London 2001, 116-67, in part. p. 164-5); the Farabian authorship of this writing has been challenged, but this work bears in any case witness of the commonly agreed Aristotelian authorship of the *pseudo-Theology*). Furthermore, the *pseudo-Theology* is commented upon by Avicenna: *Sharkh Kitāb Uthūlūjiyyā al-mansūb ilā Arisṭū li-Ibn Sīnā*, in ʿA. Badawī, *Arisṭū 'inda l-'arab. Dirāsāt wa-nuṣūṣ ġayr manshūra*, Maktabat al-Nahḍa al-miṣriyya, Cairo 1947 (Dirāsāt islāmiyya, 5), 35-74. Other pseudo-Aristotelian writings that can be traced back to this stage of the Graeco-Arabic translations are the *K. al-tuffāḥa* (*Liber de pomo*), a reworking of the *Phaedo* with Aristotle taking the place of Socrates, and a *Physiognomic*: see M. Aouad, "Le *De pomo*", in *DPhA* I, 537-41, and J. Thomann, "La tradition arabe de la *Physiognomonie* d'Aristote", in *DPhA Suppl.*, 496-8 (both quoted above, n. 11).

[77] This point has been established by Endress, *Proclus Arabus* (quoted above, n. 56); for a survey of the scholarship on this text up to 1989, see M. Aouad, "La *Théologie d'Aristote* et autres textes du *Plotinus Arabus*", in *DPhA* I (quoted above, n. 11), 541-90; for the procedure of "cut and paste" that gave rise to the pseudo-*Theology* out of the translation of *Enn.* IV-VI, one can see my "*Pseudo-Theology of Aristotle,* Chapter I: Structure and Composition", *Oriens* 36 (2001), 78-112 and "La teologia neoplatonica di 'Aristotele' e gli inizi della filosofia arabo-musulmana" (forthcoming in the 57e *Entretiens sur l'Antiquité Classique*, Fondation Hardt, 2010). A critical edition of the *pseudo-Theology of Aristotle* will be provided thanks to the European Research Council Advanced Grant "Greek into Arabic. Philosophical Concepts and Linguistic Bridges" http://www.greekintoarabic.eu/

[78] *Ps.-Theol. Ar.*, ed. 'A. Badawī, *Aflūṭīn 'inda l-'arab. Plotinus apud Arabes. Theologia Aristotelis et fragmenta quae supersunt*, Dār al-Nahḍa al-Miṣriyya, Cairo 1966, 3.7-9.

[79] *Ps.-Theol. Ar.*, 3.4-5 Badawī.

[80] *Ps.-Theol. Ar.*, 22.1-9 Badawī, reflecting (with adaptations) Plotinus' *On the Descent of the Soul into the bodies*, IV 8[6], 1.1-7, English trans. by G. Lewis, in *Plotini Opera* II, *Enneades* IV-V ediderunt P. Henry et H.-R. Schwyzer, Desclée de Brouwer - L'Edition Universelle, Paris-Louvain 1959, 225.

This speaker, who describes in purely Neoplatonic vein his concentration on interiority and ascent to the intelligible realm, also affirms he has written the *Theology* in order to complete the exposition of the four causes he had previously done in the *Metaphysics*. He will do that through another account, this time on the suprasensible principles: the First Cause, Intellect, and the Soul.[81]

Not only did the "Aristotle" of the Kindī's circle write a *Theology*; he also authored a *Book on Pure Goodness* in axiomatic form.[82] The *Book on Pure Goodness* which was to become the *Liber de Causis* of the Latin Middle Ages consists of propositions taken from Proclus' *Elements of Theology* in Arabic translation,[83] rearranged in a new order, adapted in the same vein and with the same terminology as in the *Theology*, and attributed to Aristotle, as the *Theology* was. In the *Liber de Causis* Proclus' One becomes the First Cause, God Almighty, the true and perfect Agent, the pure Being; a hierarchy of degrees of reality – the Intellect and the separate substances, the universal Soul, and the celestial ensouled spheres – proceeds from the First Cause making its power emanate everywhere, even within the sublunar world. The translation and adaptation of some writings by Alexander of Aphrodisias[84] adds to this picture the framework of a cosmos where the perfect regularity of the celestial movements and the teleology immanent in the laws of nature conveys the divine providence to the lower levels of being, without any need for the First Cause to impart its rule through a motion or instruments, as a craftsman does when building an artifact. One of the prominent features of both the *Theology* and the *Liber de Causis* lies in that the first principle, in so far as it is pure Being, acts through its being alone (*bi-anniyyatihi faqaṭ*). This means that the true and perfect Agent of the Arabic pseudo-Aristotelica acts according to the Plotinian model of the intelligible causality, a model that Plotinus had applied not only to the Forms but also to the One, whose effects derive from it because it is what it is, with no change whatsoever.[85] This tenet flies in the face of any anthropomorphic account of the divine causality, but in the whole of the Arabic pseudo-Aristotelica there is no trace of hesitation in the use of the term "creation out of nothing (*ibdā'*)"[86] to convey this idea. One may think that this demands much of the reader, but the fact remains that both in the *Theology* and in the *Liber de Causis* "Aristotle" frames his account of the divine causality against the backdrop of the view that "creation" means that production of being out of nothing which falls within the province of the First Cause alone. An explicit effort is made in the *pseudo-Theology* to disentangle the term "creation" from any anthropomorphic implication.[87]

The adoption in the writings issued from the circle of al-Kindī of the Neoplatonic doctrine of causality as the philosophical content of "creation out of nothing" was a decisive move, and even more decisive was the attribution to Aristotle of this philosophically oriented idea of creation. In the set of texts that forms the core of

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[81] *Ps.-Theol. Ar.*, 4.10-6.6 Badawī.

[82] O. Bardenhewer, *Die pseudo-aristotelische Schrift ueber das reine Gute bekannt unter dem Namen Liber de causis*, Freiburg im Breisgau 1882 (repr. Frankfurt a. M. 1961); 'A. Badawī, *Al-Aflāṭūniyya al-muḥdatha 'inda l-'arab*, Maktabat al-Nahḍa al-miṣriyya, Cairo 1955 (2nd ed. Wikālat al-Maṭbū'at, Kuwayt 1977).

[83] Endress, *Proclus Arabus* (quoted above, n. 56).

[84] For more details on this point, one may see my "The Origins of Islamic Philosophy", in L. P. Gerson (ed.), *The Cambridge History of Philosophy in Late Antiquity*, Cambridge U. P., Cambridge 2010, 869-93.

[85] V 1[10], 6.25-40.

[86] In Kindī's *Epistle on the Definitions of Things* "creation, *ibdā'* " is defined as "making things appear out of nothing (*iẓhāru shay'in 'an lays*)": *Fī ḥudūd al-ashyā' wa-rusūmihā*, in M. 'A. Abū Rīda (ed.), *Rasā'il al-Kindī al-falsafiyya*, Dār al-fikr al-'arabī, Il Cairo 1950, 165.11.

[87] *Ps.-Theol. Ar.*, 27.7-28.3 Badawī, English trans. Lewis 231 (quoted above, n. 80).

this early "Arabic Aristotle" the true Agent, which is the One, creates through its being alone; its first and highest effect is the intelligible being; through the mediation of this first creature, the lower levels of being are created. The separatedness of the First Cause does not hamper its providence; indeed, it counts as the ratio of its primacy. All this is "Aristotle's" doctrine:

> The first cause rules all created things without being mixed with them. This is because rule does not weaken its unity, exalted over every thing, and does not destroy it, nor does the essence of its unity, separated from other things, prevent it from ruling things. This is because the first cause is fixed, ever abiding steadfastly with its pure unity. And it rules all created things and infuses them with the power of life and [with] goodnesses according to the mode of their powers to receive and their possibility. For the first goodness infuses all things with goodnesses in one infusion. But each thing receives that infusion according to the mode of its power and its being. [...] Therefore, let us return and say that every agent that acts through its being alone is neither a connecting link nor another mediating thing. The connecting link between an agent and its effect is nothing but an addition to being, as when an agent and its effect are through an instrument and [the agent] does not act through its being. [...]. As for the agent that is such that between it and its act there is no connecting link at all, this agent is a true agent and a true dispenser of providence which effects things with the utmost and ultimate of thoroughness and which directs its act with the utmost of providence. This is because it rules things through the mode in which it acts, and it acts only through its being. (trans. Taylor)[88]

This Neoplatonic account in which creation and providence stem from the very nature of the principle includes also the explanation of the hierarchy of reality in terms of the different capacity each degree has to participate in the unique and changeless emanation from the principle. One may think that such an account should have cast serious doubts on the Aristotelian authorship of the *Theology*. However, in the Prologue of this work "Aristotle" puts on equal footing the causality of the Immobile Mover of the *Metaphysics* and the changeless emanation from the principle:

> This action arises from it without motion (*bi-ġayr ḥarakat*); the motion of all things comes from it and is caused by it, and things move towards it by a kind of longing and desire. (trans. Lewis)[89]

This elicits the conclusion that in the formative period of Arabic-Islamic philosophy the theology of Book *Lambda* and Plotinus' metaphysics of the One were compared to one another, and interpreted as fully compatible with one another.

Nothing prevents some of the effects of the First Cause from being eternal, while being created. It is worth noting that in the *Letter of the Golden House* "Aristotle" makes no effort to conceal his conviction that the duration of the cosmos is infinite in time,[90] and in the *Liber de Causis* the First Cause, which is above eternity, creates

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[88] *Liber de Causis*, § 19, 95.1-97.7 Bardenhewer = 20.10-21.15 Badawī (quoted above, n. 82), English translation by R. C. Taylor, St. Thomas Aquinas, *Commentary on the Book of Causes* translated by V. A. Guagliardo, O. P., Ch. R. Hess, and R. C. Taylor, The Catholic University of America Press, Washington 1996, 120-21, and n. 10 (accounting for the differences between the Arabic text and its Latin version; in the text quoted above is Taylor's English translation of the Arabic).

[89] *Ps.-Theol. Ar.*, 6.11-12 Badawī, English trans. Lewis (quoted above, n. 80) 487, obviously alluding to *Metaph.* XII 7, 1072 b 3, κινεῖ δὴ ὡς ἐρώμενον.

[90] See above, n. 39.

three levels of being: the intelligible realm, which is eternal properly speaking,[91] the "sempiternal substances", which are in motion for an infinite stretch of time, and the substances of the sublunar world, whose existence is limited to a given span of time. Only the First Cause is the uncreated Creator of being; whatever else is created, no matter if truly eternal, or endowed with an infinite temporal duration, or submitted to time.[92] Once "Aristotle" has stated this, his fellow *falāsifa* will see no contradiction at all in stating that there are three kinds of substance – eternal, sempiternal, and temporal – *and* that all of them are created. "Aristotelian" philosophers of a later age, like al-Fārābī (d. 950), will endorse precisely the meaning of "creation" as an act accomplished in no time[93] which is implied in the topic of the Intellect as the first creature of the First Principle, prominent in the *pseudo-Theology* and in the *Liber de Causis*. From this point of view, the position of al-Fārābī is rooted in the doctrines of "Aristotle" shaped within the circle of al-Kindī: al-Fārābī suggests that according to Aristotle the highest part of the cosmos is eternal,[94] and at one and the same time boldly proclaims that only Aristotle has provided the foundations for the idea of creation out of nothing, whereas the accounts given in the Qur'ān do not go beyond the anthropomorphic image of a craftsman operating on pre-existing matter.[95]

A quasi-contemporary of al-Kindī, the Christian doctor Ḥunayn ibn Isḥāq (d. 873), and a group of translators associated with him in various ways – first and foremost, his son Isḥāq ibn Ḥunayn (d. 911) – produced many other translations of medical, astronomical, mathematical, and philosophical works.[96] Among these translations, the Aristotelian corpus stands out: the logical works (*Categories*,[97] *De Interpretatione*,[98]

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[91] *Liber de Causis*, § 2, 61.11-63.3 Bardenhewer = 4.17-5.8 Badawī (quoted above, n. 82).

[92] *Liber de Causis*, § 30, 113.10-115.6 Bardenhewer = 30.9-31.9 Badawī.

[93] "Nor is it [i.e., the First] in need, in order for the existence of something else to emanate from its existence, of anything other than its very essence, neither of a quality which would be in it nor of a motion (*wa-lā ḥaraka*) through which it would acquire a state which it did not have before, nor of a tool apart from its essence": Abū Naṣr al-Fārābī, *Mabādi' ārā' ahl al-madīna al-fāḍila*, A revised text with introduction, translation and commentary by R. Walzer, ed. G. Endress, Great Books of the Islamic World, Chicago 1998 (1st ed. Clarendon Press, Oxford 1985), 92.8-10 (Ar.), 93 (English transl.); compare Fārābī's statement with the passage from the *Liber de Causis* quoted above, n. 88, and in particular the topic of creation as that sort of production that does not imply any movement (*bi-ġayr ḥarakat*, *wa-lā ḥaraka*), endorsed by "Aristotle" in the Prologue of the *pseudo-Theology* (n. 89).

[94] M. Mahdi, "Alfarabi against Philoponus", *Journal of Near Eastern Studies* 26 (1967), 233-60, in part. p. 256; Id.,"The Arabic Text of Alfarabi's *Against John the Grammarian*", in S. A. Hanna (ed.), *Medieval and Middle Eastern Studies in Honor of Aziz Suryal Atiya*, Brill, Leiden 1972, 268-84, in part. p. 275-6. That the highest part of the cosmos is incorruptible is stated in as many words also by al-Kindī, *Epistle on the Exposition of the Bowing of the Outermost Body*, 257.7 Abū Rīda, 195.4 Rashed-Jolivet (see above, n. 4).

[95] Al-Fārābī, *Harmonization*, 66.2-67.3 Martini Bonadeo, English transl. Butterworth 2001, 157-8 (both quoted above, n. 76).

[96] On Ḥunayn and his "school" see G. Bergsträsser, *Ḥunayn ibn Isḥāḳ und seine Schule: Sprach- und literargeschichtliche Untersuchungen zu den arabischen Hippokrates- und Galen-Übersetzungen*, Brill, Leiden 1913; Id., "Ḥunayn ibn Isḥāq über die syrischen und arabischen Galen-Übersetzungen, zum ersten Mal herausgegeben und übersetzt", *Abhandlungen für die Kunde des Morgenlandes* 17, 2 (1925); Id., "Neue Materialen zu Ḥunayn ibn Isḥāqs Galen-Bibliographie", *Abhandlungen für die Kunde des Morgenlandes*, 19, 2 (1932); G. Gabrieli, "Hunáyn ibn Ishâq", *Isis* 6 (1924), 282-92; M. Meyerhof, "New Light on Ḥunayn Ibn Isḥâq and his Period", *Isis* 8 (1926), 685-724; the 1974 issue of the journal *Arabica* is entirely devoted to Ḥunayn; G. Strohmaier, *Ḥunayn ibn Isḥāq al-Ibādī*, in *EI*^{2}, III (1990); S. Brock, "The Syriac background to Ḥunayn's translation techniques", *Aram* 3 (1991), 139-62; J. Watt, "Syriac translators and Greek philosophy in early Abbasid Iraq", *Journal of the Canadian Society for Syriac Studies* 4 (2004), 15-26.

[97] The *K. al-Fihrist* (248.20 F = 309.4 T) attributes this translation to Ḥunayn, but in the MS it is attributed to Isḥāq (edition: Badawī, *Manṭiq Arisṭū*, quoted above, n. 66); see Hugonnard-Roche -

Prior Analytics,[99] *Posterior Analytics*,[100] *Topics*,[101] *Rhetoric*[102]), the *Physics*,[103] *De Caelo*,[104] *De Generatione et corruptione*,[105] *De Anima*,[106] *Metaphysics*,[107] and the *Nicomachean Ethics*.[108] To this impressive series of Aristotelian works, a number of pseudepigraphical writings should be added.[109]

A prominent feature of this group of translations lies in that they have been done with philological care,[110] often in two steps, from Greek into Syriac and from Syriac into Arabic, and in a style that priviledges the rendering of the sentence as a whole

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Elamrani-Jamal, "L'*Organon*. Tradition syriaque et arabe" (quoted above, n. 11), 510-2 and H. Hugonnard-Roche "Remarques sur la tradition arabe de l'*Organon* d'après le manuscrit Paris, Bibliothèque Nationale, *ar*. 2346", in Burnett (ed.), *Glosses and Commentaries on Aristotelian Logical Texts* (quoted above, n. 20), 19-28.

[98] The *K. al-Fihrist* (249.1 F = 309.12 T) claims that Ḥunayn made the Syriac translation and Isḥāq the Arabic one (edition: Badawī, *Manṭiq Arisṭū*, quoted above, n. 66).

[99] *K. al-Fihrist*, 249.6 F = 309.17 T (edition: Badawī, *Manṭiq Arisṭū*, quoted above, n. 66) see Hugonnard-Roche - Elamrani-Jamal, "L'*Organon*. Tradition syriaque et arabe" (quoted above, n. 11), 516-20.

[100] *K. al-Fihrist*, 249.11-12 F = 309.23 T; see Hugonnard-Roche - Elamrani-Jamal, "L'*Organon*. Tradition syriaque et arabe" (quoted above, n. 11), 520-1 and 521-24. This translation, lost to us, provided the basis for the Arabic version that has come down to us (see below, n. 116).

[101] *K. al-Fihrist*, 249.15-16 F = 309.27-28 T (edition: Badawī, *Manṭiq Arisṭū*, quoted above, n. 66); see Hugonnard-Roche - Elamrani-Jamal, "L'*Organon*. Tradition syriaque et arabe" (quoted above, n. 11), 524-5.

[102] *K. al-Fihrist*, 250.1 F = 310.13 T; The Arabic version which is extant and edited (Lyons, *Aristotle's Ars Rhetorica*, quoted above, n. 46) is anonymous: see Aouad, "La *Rhétorique*. Tradition syriaque et arabe" and Watt - Aouad, "La *Rhétorique*. Tradition syriaque et arabe (compléments)", both quoted above, n. 11.

[103] Isḥāq was the author of the Arabic translation of the *Physics* that has come down to us in the MS Leiden, Bibl. der Rijksuniversiteit, *or.* 583 (ed.: 'A. Badawī, *Arisṭūṭālīs. Al-Ṭabī'a. Tarjama Isḥāq ibn Ḥunayn*, I-II, al-Hay'a al-miṣriyya al-'Amma li-l-Kitāb, Cairo 1984); a translation of books IV-V is attributed to another translator of this circle, Abū 'Uthmān al-Dimashqī in the *K. al-Fihrist* (250.14 F = 310.25 T); see Lettinck, *Aristotle's Physics and its Reception in the Arabic World* (quoted above, n. 65).

[104] The *K. al-Fihrist*, 250.28-29 F = 311.12 T mentions Ḥunayn's revision of the old version made by Ibn al-Biṭrīq (see above, n. 61).

[105] *K. al-Fihrist*, 251.3 F = 311.17 T; this translation is lost, but P. Kraus, *Jābir ibn Ḥayyān. Contribution à l'histoire des idées scientifiques dans l'Islam, II. Jābir et la science grecque*, Cairo 1942 (repr. Les Belles Lettres, Paris 1986) has discovered some chapters of the Arabic *De Gen. corr*. in the alchemic corpus attributed to Jābir ibn Ḥayyān; see Rashed, "*De Generatione et corruptione*. Tradition arabe" (quoted above, n. 11).

[106] *K. al-Fihrist*, 251.11-18 F = 311.24-312.3 T. An Arabic translation of the *De anima* is edited ('A. Badawī, *Arisṭūṭālīs fī al-nafs*. Maktabat al-Nahḍa al-miṣriyya, Cairo 1954); on the many problems of the Arabic *De Anima* see Elamrani Jamal, "*De Anima*. Tradition arabe" (quoted above, n. 11).

[107] The *K. al-Fihrist*, 251.26 F = 312.12 T, mentions Isḥāq's translation of book *alpha elatton* and alludes to his translation of other books; for further readings see Martin, "La *Métaphysique*. Tradition syriaque et arabe" and Martini Bonadeo, "La *Métaphysique*. Tradition syriaque et arabe. Mise à jour bibliographique" (both quoted above, n. 11).

[108] *K. al-Fihrist*, 252.2 F = 312.19 T; the translation is edited (A. A. Akasoy - A. Fidora, *Aristotle. The Arabic Version of the Nicomachean Ethics*, with an Introduction and Annotated Translation by D. M. Dunlop, Brill, Leiden - Boston 2005, Aristoteles Semitico-Latinus 17) see Zonta, "Les *Éthiques*. Tradition syriaque et arabe" (quoted above, n. 11).

[109] The most important are the *Problemata physica*, the so-called *De Lapidibus*, the *De Plantis*, the *Physiognomica*, and *De Virtutibus et vitiis*.

[110] In a well-known passage of his epistle on Galen's books (*Epistle from Ḥunayn ibn Isḥāq to 'Alī ibn Yaḥyā on all the books of Galen which, as far as he knows, have been translated and on some of them which have not been translated*), Ḥunayn describes his collation of several Greek manuscripts in order to reach a better text: the passage has been edited by Bergsträsser, "Ḥunayn ibn Isḥāq über die syrischen und arabischen Galen-Übersetzungen" (quoted above, n. 96), p. 4, and has been translated into English by F. Rosenthal, *The Classical Heritage in Islam*, Routledge & Kegan Paul, London 1975, p. 20-21; see also Degen, "Galen im Syrischen", quoted above, n. 15.

over the word-for-word style of some of the translations of the circle of al-Kindī.[111] Even more important for the purposes of the present survey is the fact that this gigantic effort put at the disposal of the Arab learned audience the Aristotelian corpus almost in its entirety.

In Fārābī's eyes, the Aristotelian corpus is a systematic whole. Aristotle shares with Plato the idea that philosophy is the means to reach the perfection of man: the knowledge of truth, in which consists man's ultimate happiness. However, Aristotle's way to this is more comprehensive than Plato's, starting as it does from the most elementary conditions of knowledge and ascending step by step towards the peak of the human capacity to understand. To this broader approach a much more systematic structuring corresponds in Aristotle's work with respect to Plato's. Aristotle's bottom-up path begins with logic and proceeds upwards through physics to eventually reach the metaphysics. According to al-Fārābī, Aristotle had conceived of each of his writings as part and parcel of a systematic account, with a unitary aim and a propaedeutical approach: he decided to write down the parts of this whole one after another, according to a carefully planned structure. The latter follows the path laid in late Antiquity: from logic to the natural sciences, and from nature to the suprasensible realm.

> Aristotle sees the perfection of man as Plato sees it and more. However, because man's perfection is not self-evident or easy to explain by a demonstration leading to certainty, he saw fit to start from a position anterior to that from which Plato had started [...] Therefore Aristotle saw fit to make known at the outset what the certain science is, how many classes it has, in which subjects it exists [...] According to him, therefore, there emerge three sciences: the science of logic, natural science, and voluntary science [...] Therefore he began first to investigate and enumerate the instances of being from which the first premises are compounded, that contain the questions to be investigated, and that are the primary significations of the expressions generally accepted by all [...] He confined all of them to the ten genera, called them categories, and set them down in a book called in Greek *Kategorias* and in Arabic *al-Maqulāt* [...]. Then afterwards he proceeded to make known what actions the art of logic takes with regard to them and how it employs them. [...] This is to be fouund in a book by him which in Arabic is called *al-'Ibāra* and in Greek *Peri Hermeneias*. [...] Then, after that, he made known how premises are compounded and paired together [...] He made known the mode of using these rules in every rational art that uses reasoning and investigation [...] He placed these rules in a book he called *Analytika* [...] Then, after that, when he had completed these matters, he set out upon natural science. He turned once again to the instances of being he enumerated in the *Categories* [...] This is the sum of the axioms of natural science that he presented in a book of his called *Lectures on Physics* [...] When this had become evident to him, he proceeded to discourse about these primary bodies and to speak of others posterior to them [...] All this is to be found in a book of his that he called *On the Heaven and the World*. Then he began, in another book, from the final point reached in *On the Heaven and the World*. [...] When he had exhausted all of this, he investigated afterwards in what manner the four bodies are elements [...] All these things are to be found in a book of his known as *On Generation and Corruption* [...] Then afterwards he set out to conduct a general inquiry into the bodies that originate in the combination of these four elements with each other [...] All these things are to be found in a book he called *Meteorology* [...] When he had exhausted all of this, he suddenly saw that nature and natural principles are not sufficient in most matters relating to animals; no, in addition to nature and to natural principles, one requires another principle [...] This

[111] See Rosenthal, *The Classical Heritage in Islam*, p. 17-18.

> other principle is the soul [...] Then he investigated whether the Active Intellect is also the cause of the existence of nature and natural things and of the soul and animate things [...] Therefore Aristotle proceeded in a book that he called *Metaphysics* to inquire into, and to investigate, the beings in a manner different than natural inquiry. (trans. Mahdi)[112]

Al-Fārābī had nor Greek neither Syriac, but his teachers of philosophy in Baghdad were both Christians from Syria.[113] The last set of translations into Arabic has been produced within the circle of the so-called "Aristotelians of Baghdad",[114] this time out of the earlier Syriac versions and with no recourse to the Greek originals. The leader of this group was one of the two teachers of al-Fārābī, Abū Bishr Mattā ibn Yūnus (d. 940).[115] His successor in the leadership of the circle was another Christian, who had been Fārābī's condisciple in the circle of Abū Bishr Mattā: Yaḥyā ibn ʻAdī (d. 974), a scholar who did not limit himself to translate philosophical works,[116] but was also a prolific writer in both secular and religious fields,[117] and often the source of information on Greek texts for Ibn al-Nadīm, whose *K. al-Fihrist* has been quoted so many times in this survey. The focus of this circle was the interpretation of Aristotle: to the commentaries translated in earlier stages

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[112] *Al-Fārābī's Philosophy of Aristotle (Falsafat Aristûtâlîs)*. Arabic Text, Edited with Introduction and Notes by M. Mahdi, Dâr Majallat Shiʻr, Beirut 1961, 59-132; English trans. by M. Mahdi, *Alfarabi's Philosophy of Plato and Aristotle*, The Free Press of Glencoe, New York 1962, 71-130.

[113] One of these teachers is mentioned by al-Fārābī himself in his *On Philosophy and the Causes of its Rise*, lost but quoted by Ibn Abī Uṣaybiʻa (cf. Gutas, "The 'Alexandria to Baghdad' complex of narratives", quoted above, n. 51): see J. Habby, "Yuḥannā Ibn Ḥaylan maestro di al-Fārābī e l'*Organon* di Aristotele", in A. Valvo (ed.), *La diffusione dell'eredità classica nell'età tardontica e medievale: forme e modi di trasmissione*, Edizioni dell'Orso, Alessandria 1997, 95-108. The other teacher was Abū Bishr Mattā ibn Yūnus: see the following note.

[114] J. L. Kraemer, *Humanism in the Renaissance of Islam. The Cultural Revival during the Buyid Age. 2nd revised edition*, Brill, Leiden-New York-Köln 1992 (Studies in Islamic Culture and History Series, 7), in part. p. 77 on the relationship between al-Fārābī and his Christian teachers and pupils. See also C. Ferrari, *La scuola aristotelica di Bagdad*, in C. D'Ancona (ed.), *Storia della filosofia nell'Islam medievale*, Einaudi, Torino 2005, I, 352-79.

[115] Abū Bishr Mattā translated into Arabic the Syriac version of the *Posterior Analytics* made by Isḥāq (*K. al-Fihrist*, 249.12 F = 309.23 T): see Hugonnard-Roche - Elamrani-Jamal, "L'*Organon*. Tradition syriaque et arabe" (quoted above, n. 11), 522; he also made the Arabic version of the Syriac translation of the *Poetics* (*K. al-Fihrist*, 250.4 F = 310.16 T). The translation is extant (J. Tkatsch, *Die arabische Übersetzung der Poetik des Aristoteles und die Grundlage der Kritik des griechischen Textes*, Akademie der Wissenschaften in Wien, Wien - Leipzig 1928); see Hugonnard-Roche, "La *Poétique*. Tradition syriaque et arabe" (quoted above, n. 11). He also made a partial translation of the *De Caelo* (*K. al-Fihrist*, 250.29 F = 311.12 T; see Hugonnard-Roche, "*De Caelo*. Tradition syriaque et arabe", quoted above n. 11, 284) and that of the lemmata of the *De Gen. et corr.* quoted by Alexander in his commentary on this work (lost in Greek): *K. al-Fihrist*, 251.4 F = 311.18 T (see Rashed, "*De Generatione et corruptione*. Tradition arabe", quoted above, n. 11, 305). Also, the *De Sensu et sensato* features among his translations (*K. al-Fihrist*, 251.20 F = 312.2 T; see Di Martino, "*Parva Naturalia*. Tradition arabe", quoted above, n. 11). According to Ibn al-Nadīm (*K. al-Fihrist* 251.28 F = 312.14-15 T) Abū Bishr Mattā re-translated also Book *Lambda* of the *Metaphysics* together with Alexander's commentary. Even though this translation is lost, several long quotations from it are preserved in Averroes' commentary : see Bouyges (ed.) Averroès, *Tafsir Ma baʻd at-tabiʻat* (quoted above, n. 68), *Notice* (1952), p. cxxx.

[116] Among his translations, there are two Aristotelian works: the *Topics* (*K. al-Fihrist* 251.15-16 F = 309.27 T; see Hugonnard-Roche - Elamrani-Jamal, "L'*Organon*. Tradition syriaque et arabe" (quoted above, n. 11), 524) and the *Soph. el.* (249.27 F = 310.9 T; see Hugonnard-Roche - Elamrani-Jamal, "L'*Organon*. Tradition syriaque et arabe" 527).

[117] G. Endress, *The Works of Yaḥyā ibn ʻAdī. An analytical inventory*, Reichert, Wiesbaden 1977; E. Platti, *Yaḥyā ibn ʻAdī, théologien chrétien et philosophe arabe*, Orientalia Lovaniensia Analecta, Leuven 1983.

(chiefly by Ḥunayn and Isḥāq) other commentaries were added, this time authored by these Arab Aristotelians themselves. Since then, Greek will be flanked not only by Latin, but also by Arabic in the task of expounding Aristotle's doctrines, even though the full-fledged Arabic commentary on Aristotle belongs to a later age and a different scenario: that of the Muslim West, al-Andalus, with the towering work of Averroes. In the East of the Muslim world, Avicenna had harshly criticized the Baghdad Aristotelians and their erudition,[118] but he himself, as Averroes will do much later, did rely on the Arabic Aristotle created in the process of translation and assimilation that I have tried to outline so far.[119]

2. The Arabic Aristotle, and beyond

A general survey on the translations of philosophical works from the end of Antiquity to the Middle Ages would easily show that Aristotle's corpus counts as the red herring of this passionating history of continuity and adaptations.[120] From the Graeco-Latin translations of the end of Antiquity to the Graeco-Syriac and Graeco-Arabic translations of the VI-Xth centuries, from the Graeco-Latin translations of the first half of the XIIth century to the Arabo-Latin versions of the second half of the same century and the first decades of the XIIIth century, from these to the Graeco-Latin translations of William of Moerbeke in the second half of the century, an uninterrupted chain of transmission has fostered the reading of Aristotle's works in the various languages of culture: Latin, Syriac, Arabic, and Latin again, not to mention the translations from Arabic into Hebrew which will appear a bit later.

Any attempt to single out in a short and comprehensive formula the aspects of continuity and the repeated adaptations that compose this multifarious history would be preposterous. Having insisted above on the formative period of Arabic-Islamic philosophy, I shall focus on only one point: the image of the Aristotelian philosophy as a systematic whole, in which the topic of the ascent from logic to physics and from physics to metaphysics goes hand in hand with the idea that metaphysics is, in its turn, crowned by rational theology. This image, whose relationship with the late Neoplatonic model of Aristotle's system as an introduction to Plato's "Great Mysteries" [121] has not yet been explored in depth, was created within the circle of al-Kindī. Its reappearance in the Latin universities of the XIIIth century was, once again, due to a translation.

The last arcade of the bridge from Late Antiquity to the Middle Ages is located in the West. We are in Toledo, in second half of the XIIth century. A *clericus vagans*, Gerard, from the Italian town Cremona, travels to this Andalusian town which is from some sixty years ago Christian again, after about four centuries of Muslim rule. What he is looking for is a copy of the *Almagest*, and he is lucky enough to find it and to translate it into Latin, together with an impressive amount of scientific and philosophical works — both Graeco-Arabic translations, and original writings by

[118] S. Pines, "La 'Philosophie Orientale' d'Avicenne et sa polémique contre les Bagdadiens", *Archives d'Histoire doctrinale et littéraire du Moyen Age*, 19 (1952), 1-37.

[119] Discussing this point would exceed the limits of this paper, but a comparison between the Farabian account of Aristotle's system and the plan of Avicenna's *Kitāb al-Shifā'* might be telling.

[120] For an overview one may see my "Le traduzioni in latino e in arabo. Continuità e trasformazioni della tradizione filosofica greca fra tarda antichità e Medioevo", forthcoming in the Proceedings of the XIIth Conference of the SIEPM, Palermo 2007.

[121] Marinus of Neapoli, *Vita Procli* § 13.1-10: see Marinus. *Proclus ou sur le bonheur*, texte établi, traduit et annoté par H.D. Saffrey, A.-Ph.Segonds, C. Luna, Les Belles Lettres, Paris 2001, 15-16 and 108-110.

Arab authors. Gerard's activity as a translator lasted for some forty years: arrived in Toledo in 1144, he died there in 1187. During this time, several pupils and *socii* collaborated with him in the translation activity, and immediately after his death they dressed a list of Gerard's translations.[122] Among them, the *Liber Aristotelis de expositione bonitatis purae*, our *Liber de Causis*.

It is well known that the first circulation of the so-called *libri naturales* by Aristotle did produce an enthustiastic impact on the late XIIth and early XIIIth century scholarship, mixed with so a prominent charge of heterodoxy — due also to the fact that they travelled together with a large amount of magic and astrological works[123] — that in 1210 and 1215 the staff of the Paris University did prohibit to give public lectures on them. But in less than forty years the situation was totally upsetted. In the Statutes of 1255, the same university imposed the reading of the entire Aristotelian corpus in order to get the degree of *magister artium*. A document discovered by Martin Grabmann towards the end of the XIXth century shows that even before the Statutes of 1255 the list of the works to be read to get the degree included the entire corpus.[124] This document, the *Compendium examinatorium parisiense*, can be traced back to the thirdies or the forties of the XIIIth century; we are told that Aristotle's metaphysics is contained in three books:

> et haec scientia habet tres libros. Unus appellatur Vetus Metaphysica (...) alius liber est qui dicitur Metaphysica Nova (...) et continet X libros partiales. Et sic in tota metaphysica sunt XI libri.

The anonymous *magister artium* who is drawing up the list of the texts to be read for the exams records two of the various translations of Aristotle's *Metaphysics* then available: one is from Greek, the other from Arabic. The *Metaphysica vetus* designates the first Graeco-Latin translation by Jacob of Venice,[125] and the *nova* is the Arabic-Latin version, probably by Michael Scotus.[126] According to this scholar, there is another item among Aristotle's books on metaphysics, the *Liber de Causis*:

> et ibi agitur de substantiis divinis in quantum sunt principia essendi et influendi unam in alteram, secundum quod ibidem habetur quod omnis substantia superior influit in suum causatum.

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[122] Ch. Burnett, "The Coherence of the Arabic-Latin Translation Program in Toledo in the Twelfth Century", *Science in Context* 14 (2001), 249-88.

[123] For a very useful list list of the translations from Arabic see Ch. Burnett, "Arabic into Latin: the reception of Arabic philosophy into Western Europe", in P. Adamson - R. C. Taylor (eds), *The Cambridge Companion to Arabic Philosophy*, Cambridge 2005, 370-404.

[124] M. Grabmann, *I divieti ecclesiastici di Aristotele sotto Innocenzo III e Gregorio IX*, Saler, Roma 1941, 113-27; see also C. Lafleur, *Quatre introductions à la philosophie au XIIIe siècle*, Publications de l'Institut d'Etudes Médiévales - Vrin, Montréal - Paris 1988; Id., "Les 'guides de l'étudiant' de la Faculté des Arts de Paris au XIIIe siècle", in M. J. F. M. Hoenen - J. H. J. Schneider - G. Wieland (eds), *Philosophy and Learning. Universities in the Middle Ages*, Brill, Leiden 1995, 137-99; Id., "Transformations et permanences dans le programme des études à la Faculté des Arts de l'Université de Paris au XIIIe siècle", *Laval Théologique et Philosophique* 54 (1998), 387-410; C. Lafleur - J. Carrier (eds), *L'enseignement de la philosophie au XIIIe siècle. Autour du 'Guide de l'étudiant' du ms. Ripoll 109*, Brepols, Turnhout 1997.

[125] *Aristoteles Latinus* XXV.1-1[a], *Metaphysica, lib. I-IV 4. Translatio Iacobi sive Vetustissima cum scholiis et translatio composita sive Vetus* ed. G. Vuillemin-Diem, Desclée de Brouwer, Bruxelles-Paris 1970; see L. Minio-Paluello, "Iacobus Veneticus Grecus: Canonist and Translator of Aristotle", *Traditio* 8 (1952), p. 265-304 (repr. in Id., *Opuscula. The Latin Aristotle*, Hakkert, Amsterdam 1972, 189-228).

[126] The so-called *Metaphysica nova*, preserved in some fifty MSS, consists of the lemmata extracted from Averroes' Great Commentary in Latin translation (probably by Michael Scotus). Incomplete, it has not yet been edited.

The Statutes of 1255 will endorse the structure of Aristotle's metaphysics mirrored in this account, and prescribe that courses must be taught on Aristotle's *Metaphysics* and the *Liber de Causis*. The latter was to be read during seven weeks.[127] The late Ancient model of crowning Aristotle's metaphysics with the account of the supra-sensible realm of the principles One, Intellect and Soul would hardly have had so a clear echo in the universities of the Latin Middle Ages without the activity of the circle of al-Kindī in the IXth century Baghdad, and without the dissemination of the Aristotelian and pseudo-Aristotelian works in Arabic language in the West of the Muslim world.

[127] See H. D. Saffrey, *Introduction*, in Thomas d'Aquin, *Super Librum de causis expositio*, Fribourg 1954 (2nd ed. Vrin, Paris 2002), p. xix and n. 3 (referring to the *Chartularium Universitatis Parisiensis*); see also A. De Libera, "Structure du corpus scolaire de la métaphysique dans la première moitié du XIIIe siècle", in C. Lafleur - J. Carrier (eds), *L'enseignement de la philosophie au XIIIe siècle* (quoted above, n. 124), 65-88.

The division of the categories according to Avicenna

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In various writings Aristotle gives what look like exhaustive lists of the categories – different ones in different places.[1] He nowhere gives any reason for thinking that any of the lists is exhaustive. His silence on that question might be taken as an invitation for constructive interpretation; and it was so taken by several of the ancient Greek commentators, who devised arguments which, by dividing being (or some other very general class) successively into sub-classes, arrived at a conclusion about the number and identity of the categories.[2]

The project of constructing a division from which one could deduce the ten Aristotelian categories was taken up by some of the Arabic philosophers, including Al-Kindī. In his work *On the Quantity of Aristotle's Books and on what is required for attaining Philosophy* Al-Kindī divides beings into Substances and the predicates of Substance, the latter being subdivided into those that are 'primary and simple' and those that are compound. The simple predicates are of two kinds, depending on whether they vary according to equality and inequality (these are the Quantities), or according to likeness and unlikeness (these are the Qualities). The compound

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[1] *Categories* 4 (10 categories); cf. *Physics* V.1, 225b5 and *Metaphysics* Δ.7, 1017a25 (8 categories, omitting Position and Having).

[2] Simplicius 62,20ff summarizes many of these arguments. Al-Farabi gives a detailed discussion of some of the arguments favouring a list shorter than 10 in his *Book of Letters* Part I Chapter 11 §§53-54 transl. Butterworth.

predicates are subdivided into those that exist 'without matter' and those that exist 'with matter'. The former class are the Relatives. The latter consist of a combination of Quantity with Substance (and this is the category of Where if the Quantity is a place, or the category of When if the Quantity is a time), or a combination of Quality with Substance (and, because powers are a kind of Quality, and powers are exercised in Acting and being-acted-upon, this is either the category of Acting or the category of Being-acted-upon), or a combination of Substance with Substance (and, because this involves a spatial relationship between Substances, this is either the category of Having or the category of Position).[3] His division is shown in Figure 1.

[3] The primary and simple predicates of substance are two, quality and quantity, because everything that is a predicate that follows a substance varies either in regard to equal and unequal – which is the special property of quantity – or in regard to like and unlike – which is the special property of quality.

As for the compound predicates of substance, they are also two: either what exists without matter or what exists with matter. As for what exists without matter, it is relation, because fatherhood and sonhood consist of the relation of each one of the two to the other, of what exists through the existence of the other, and of the part and the whole, for neither one of the two is associated with matter in its description.

As for what exists with matter, it consists of the combination of quantity with substance, or quality with substance, or substance with substance.

As for the combination of quantity with substance, it is like "where", because it contains the power of substance with place, and place is a quantity; or like "when", because it contains the power of time with substance, and time is a quantity.

As for the combination of substance with quality, it is like "acting", because it contains the power of substance with acting, and acting is a quality; or like "being acted upon", because it also contains the power of substance with acting, and acting is a quality, as mentioned.

As for the combination of substance with substance, it is possession, for it contains the power of a substance which the possessor and of substance which is the possession; and like position, for it

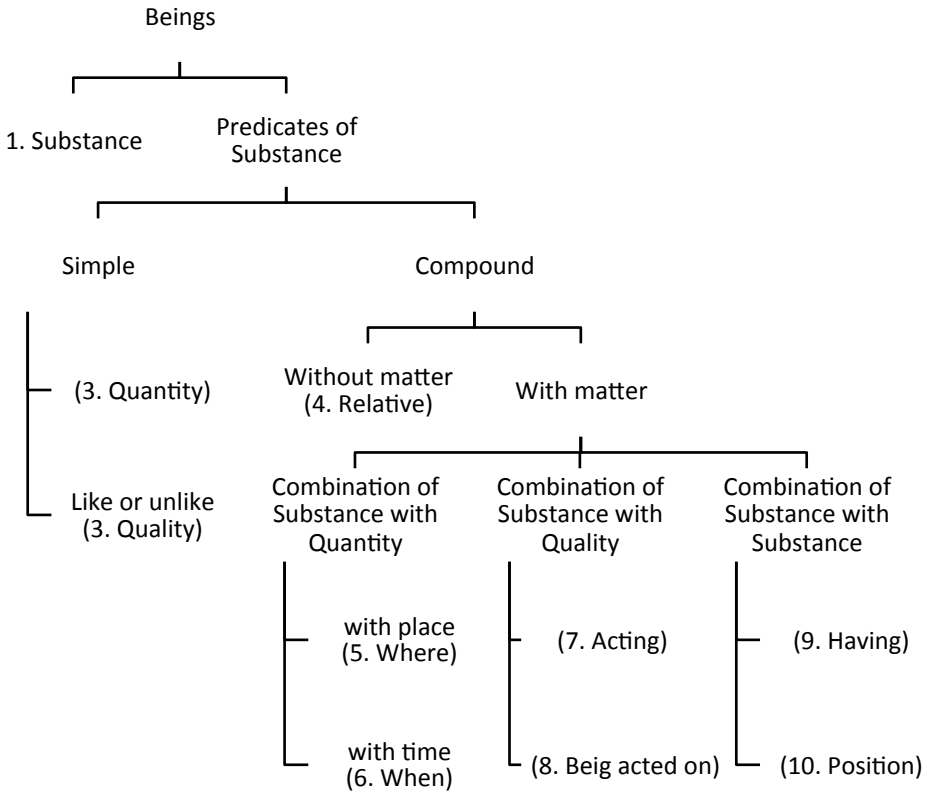

Figure 1. The categories according to Al-Kindī

Al-Kindī's division relies heavily on Greek sources. The overall division of Accidents (Quantity and Quality on one side, the remaining seven on the other, with Relatives

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contains the power of one substance on top of another, i.e., of a posited thing on top of another, and so it contains the power of two substances that are on top of each other by position.

Translation by Dimitri Gutas, in his paper "Al-Kindī on the Categories" presented to the conference *New Materials on Aristotle's Categories* conference held at Byron Bay, Australia, 17-18 December 2006.

counterposed to a group comprising three pairs) is found in Olympiodorus.[4] Olympiodorus's division is shown in Figure 2.

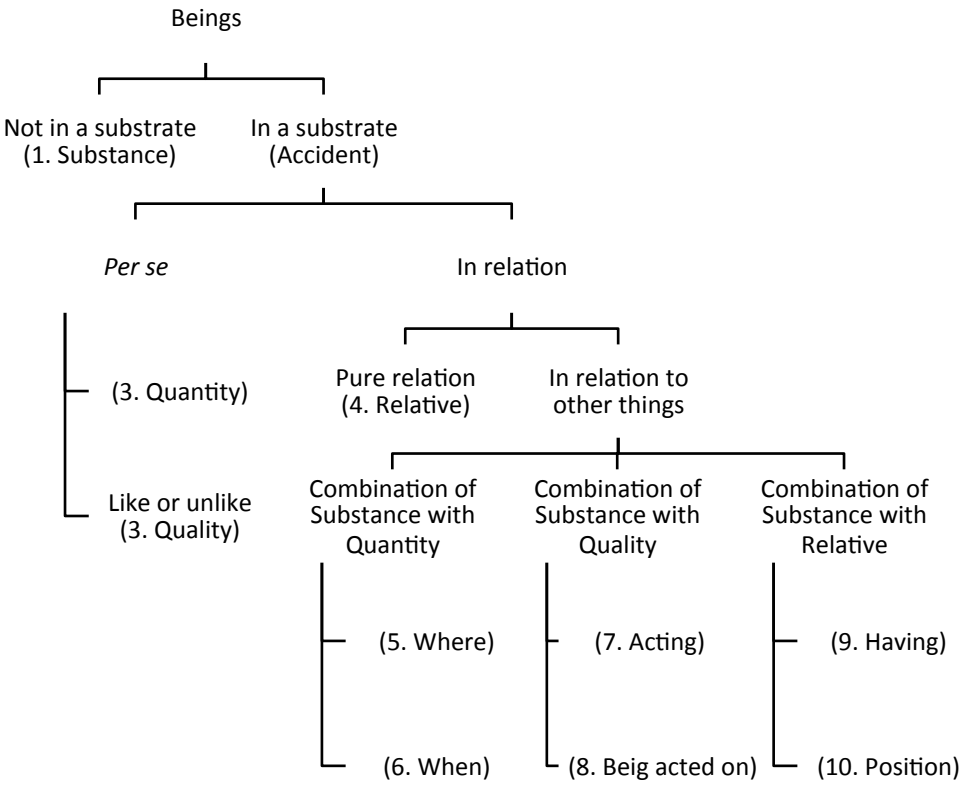

Figure 2. The categories according to Olympiodorus, Elias

Kindī's overall structure is the same, but the conceptual base of his division differs in some details from that of Olympiodorus. He conceives of the primary cut as

[4] Olympiodorus 54,3-24. The same division is in Elias on the Categories. CIAG XVIII. Eliae In Porphyrii Isagogen et Aristotelis Categorias Commentaria. Ed. A. Busse. Berlin: Gergii Reimeri. 1900. 159,14-33: Being divides into 'In a subject' and 'Not in a subject'. 'Not in a subject' makes for Substance. If in a subject, then either *per se* or not *per se*. If *per se*, then either divisible [*meriston*] or indivisible [*ameriston*]. If divisible, it makes for Quantity. If indivisible, it makes for Quality. If not *per se*, if a *pure* relationship [*schesis monē*] it makes Relative. If *according to* a relationship [*kata schesin*] then Substance is mixed with the other three. From Substance and Quantity the When and Where. From Substance and Quality the Action and Passion. From Substance and Relative, Having and Position.

contrasting Substance with predicates of Substance, whereas Olympiodorus first divides beings into things in a substrate and things not in a substrate. Kindi next divides the accidents into simple and compound, whereas Olympiodorus divides them into those that are *per se* and those that are in relation (*en skhesei*). The last seven accidents, in Kindi's treatment, are either without matter or with matter, whereas in Olympiodorus they are divided into those that are in pure relation (Relatives) and those that are in relation to other things (the remaining six categories). Both thinkers conceptualize the last six categories by various combinations of the first four, [5] but where the conceptual basis of the last two categories in Olympiodorus is the combination of Substance with Relative, in Kindi it is the combination of Substance with Substance. Olympiodorus's base concepts are ontological (in a substrate, *kath' hauto*) whereas those of Kindi are logical (predicates of substance, simple). At the same time, Kindī has an ontological conception of the difference between relatives and the last six categories (as determined by the absence or presence of a reference to matter), whereas in Olympiodorus this difference is based on the difference between pure relation and relating to something else.

One may conjecture then that Kindī's division derives historically by an unknown route from Olympiodorus's division, and that along the way the following conceptual transformations occurred:

[5] Olympiodorus 54,3-24. Simplicius transl, Michael Chase pp.149-150.

Olympiodorus	**Al-Kindi**
Per se / in relation	Simple / compound
Pure relation / in relation to other things	Without matter / with matter
The combination of Substance with Relative	The combination of Substance with Substance

Table 1. Conceptual differences between Olympiodorus and Al-Kindi

Notwithstanding these differences, Kindi shares the Greek commentators' aim of constructing a deduction of the categories, and in many details his approach matches those of his Greek predecessors.

Not so with Al-Farabi. He does not comment directly on Kindi's division – neither in his Paraphrase of the *Categories* nor in his *Book of Letters*. However, in the *Categories* Paraphrase he does reject the combinatorial approach to the last six categories, which Kindi took from the Greeks. Farabi voices his opposition to such an approach, in his discussion of the categories of Where and When:

> The meaning of When is not time as such nor anything composed of substance and time, as some think. … Where is the relation of the body to its place, but it is not the place, nor the combination of body and place.[6]

[6] D.M. Dunlop, "Al-Farabi's Paraphrase of the Categories of Aristotle", *The Islamic Quarterly* 4 (1958) 168-197; 5 (1959) 21-54 §29.

This rejection is consistent with what F.W. Zimmermann sees as Farabi's low opinion of Kindi:

> Justly, al-Farabi did not regard himself as a successor of al-Kindi. To us as to him, logic in Islam begins with al-Farabi. Translations and a rudimentary terminology was all the desultory production of the ninth century contributed to the logic of the Aristotelian movement of the tenth. Early logical treatises tended to reproduce, usually with less than total understanding, derivative material from less than adequate manuals.[7]

More broadly, Farabi did not regard himself as an inheritor of the Greek tradition – at least in respect of the project of deducing the number and identity of the categories.

Like Farabi, Avicenna objects to any attempt to construct a deduction of the categories. In the first place, he observes, Aristotle himself made no such attempt,[8]. And secondly, in his judgment any such attempt must be vain.[9] The ten categories

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[7] *Al-Farabi's Commentary and Short Treatise on Aristotle's De Interpretatione* transl. with an introduction and notes by F.W. Zimmermann (London: Oxford University Press 1981) p.cxxv n.1.

[8] Avicenna, *Shifā* 7,8. What is significative of [the fact] that I have told you the truth is that these investigations have been omitted in the book that is the source [of these commentaries: sc., The Categories itself]. Translation by Allan Bäck.

[9] Avicenna *Shifā* 6,12. You need to know that all their attempts to establish a number for these ten [categories] fail, and that he [Aristotle] did not take pains about it, and that each (category) has the property [of being] such [and such], and that nine of them are different from the first one in that it is substance and they are accidents, and so forth. Now they [these attempts] are explanations procured from other arts and there is every [sort of] inadequacy in them, since there is no way to knowledge of that except by a thorough examination, and there is no way to a thorough examination except after the attainment of the level of knowledge that is called first philosophy. Translation by Allan Bäck.

have to be irreducibly different from one another. So none of them has a genus.[10] Therefore no specific division can arrive at them. They can be arrived at, if at all, only by a process of non-specific partition. Like Farabi, Avicenna rejects the idea that the last six categories are generated by the combination of Substance with other categories.[11]

But when, in the *Categories* section of *Al-shifā*, he enters this dialectical field, he does so in a way that seems to be intermediate between the approaches of Kindi and Farabi. Unlike Farabi he offers a division of the categories, but unlike Kindi he describes the division he offers as merely an approximation, and offers what looks like a half-hearted defence of it.

Avicenna opens his discussion of the question of the completeness and correctness of the list of categories by canvassing a division of the categories which he says is 'widely accepted'. It seems that his reason for starting with this division is that he

[10] Avicenna *Shifā* 55,8. There do not exist constitutive *differentiae* for the highest genera. Rather, they are differentiated through their essences [*per se*]. Yet they would have had constitutive *differentiae* if they had genera above them. Translation by Allan Bäck.

[11] Avicenna, *Shifā* 232,15: Know that, just as the relationship is not a compound sense whose compounding makes necessary its being repeated between two things, since there are not two parts of it, but rather two objects external to it when it is attached to them both, likewise it is not necessary to suppose a compounding about the Where and When, for the reason that each of them has a relationship to something. So the relationship is not the thing having the relationship, nor is the thing having the relationship part of it, so that the totality is the relationship. The relationship here is a part due to its essence [*per se*], since the whole is an acquisition of a whole from things and from the combining itself. So the combining is like the form, and both are like the matter, and what is combined is like the compound, while the combining is a part of the compound, like the form. Since this is absurd, then neither the Where nor the When is a compound. Translation by Allan Bäck.

takes it as representative of such divisions. If so, then when he announces that it is only an approximation, we can assume he means that there is no fully satisfactory alternative to it. All the same, he seems to think that this division is not wholly lacking in merit, because he goes on to offer a partial defence of it. However (to complicate matters), this partial defence turns out to support not the stated division but a somewhat different one which more closely resembles his own way of conceptualizing the categories, as it is expressed in his other writings. All of this is rather puzzling, and I will offer a conjectural explanation of Avicenna's seemingly strange attitude towards the whole question of the division of the categories.

According to the 'widely accepted' way of conceptualizing the categories, Substance is opposed to the Accidents, and the accidental categories are divided into three triads. In the first triad (**A**) Quantity and Quality are grouped together with Position. The second triad (**B**) comprises When, Where and Having. The third triad (**C**) contains Relative, Action and Passion.[12] The division into Substance and accidents, and the subsequent division of accidents into the three triads, are shown in Figure 3.

[12] Avicenna, *Shifā* 83,11. As for the widely accepted division, what some of them say is: substance is one of the categories, no doubt about it. When we divide the nine [other categories], which are the accidents, into their ninths, the categories are completed (as) ten. Then they say: the accident is *either* [1] firmly set in its subject (as) not being found in it by reason of some other external thing, nor (as) needing a relationship to that external (thing)—and it is a threefold division: quantity and quality and position. *Or* [2] it is found in it externally, insofar as it does not have a need for an object emanating from itself. Rather, through a quality of existence an object is based externally upon it—and it is a threefold division: "when" [time] and "where" [place] and "having". *Or* [3] there is here an object coming about between it and something external, while it is not external only—and it is a threefold division: *relatum* and action and passion. Translation by Allan Bäck.

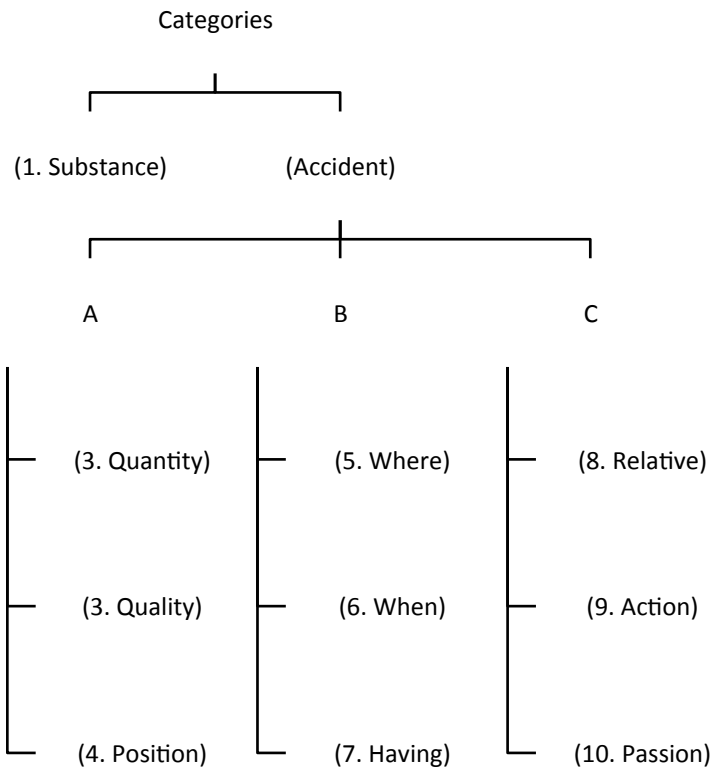

Figure 3. The categories according to the 'widely accepted' division (Avicenna, *Al-shifā*)

The origins of this division are not completely mysterious. A division that distributes the accidents into precisely these three triads is known in a fourth-century Latin Paraphrase of the *Categories*, which the Latin Medievals wrongly attributed to Saint Augustine, but which was composed or translated by a follower of Themistius.[13] The Themistian Paraphrase has a Greek source, and it would appear to share this source with the 'widely accepted' division of the categories to which Avicenna refers. I do not know who the people were who according to Avicenna

[13] *Aristoteles Latinus* I 1-5 ed. L. Minio-Paluello (Bruges-Paris: Desclée de Brouwer 1961), p.LXXVIII.

accepted this 'widely accepted' division. It is possible that Avicenna found it among marginalia to a copy of an Arabic translation of the *Categories*.[14]

The conceptual basis of the Themistian Paraphrase has some interesting features. The basis for the division of accidents into the three triads is that the members of triad **A** are internal to the subject, the members of triad **B** external, and the members of triad **C** both internal and external.[15] While the primary division into the **A**, **B** and **C** classes is in this way a principled one, the secondary division of each of those classes into its three categories is not.

Avicenna's presentation of the 'widely accepted' division appears to be based on a version of these same notions. The members of triad **A** are characterized as being 'firmly set in [their] subject (as) not being found in it by reason of some other

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[14] F. E. Peters, *Aristotle and the Arabs: the Aristotelian tradition in Islam* (New York: new York University Press, 1968), p.94: "The Baghdad glosses on the *Organon* are cumulative, written by succeeding scholars on the margins of the school texts in use there ..."

[15] *Paraphrasis Themistiana* in *Aristoteles Latinus* I 1-5 ed. L. Minio-Paluello (Bruges-Paris: Desclée de Brouwer 1961) 144:19-145:6. These ten categories, of which the first is *ousia*, and which supports the other nine *sumbebēkota* (i.e. accidents), of which nine some are internal to *ousia*, some external to *ousia*, and some both internal and external. Quality, Quantity and Position are internal to *ousia* (for ... being biped or triped, or white or black, or standing or lying down, are in <*ousia*> and cannot be without it). Others (Where, When, Having) are external to *ousia* – for place does not pertain to *ousia*, and time and clothing or armor are separate from *ousia*. Others (Relative, Doing and Suffering) are common – that is, both internal and external. The Relative (like the greater and the lesser, neither of which can be said without that other than which it is greater or lesser, and thus they have one <thing> in themselves and another external). Again, Doing (e.g. cutting) is both internal and external, because it cannot be said unless something is cut, nor reading unless something other than the reader is read, so that it is both internal and external to *ousia*. Suffering is similar: for to be cut or to be burnt cannot be anything unless it is from another, and on this account it is both internal and external to *ousia*.

external thing, nor (as) needing a relationship to that external (thing)'.[16] This looks like an amplification of the notion of being internal to the subject into two elements: not inhering by reason of something external, and not requiring a relationship to something external. The members of triad **B** are 'found in it externally, insofar as it does not have a need for an object emanating from itself. Rather, through a quality of existence an object is based externally upon it'.[17] Again, this seems like an amplification of the simple idea of being external: the sense of externality is analyzed into two components. The members of triad **C** are described as 'coming about between it and something external, while it is not external only'.[18] Here, perhaps, we see an articulation of the idea of being both internal and external.

However, the cogency of this conceptual base is dubious. A division based on whether something is internal or external or both internal and external is a problematic one. If the internal and the external are supposed to be mutually exclusive classes then there is no possibility of a class in which they are combined. If they are not mutually exclusive then the first two triads should be characterized as 'internal and not external', and as 'external and not internal' respectively. These observations do not figure explicitly in Avicenna's discussion, but they could hardly have escaped his notice.

[16] See note 9.

[17] See note 9.

[18] See note 9.

The question therefore arises, Is there a better way of grounding the division? This, I suggest, is the question Avicenna is answering when, having condemned the division as 'an approximation and not a close one',[19] he adds that 'it is possible to shore up this approach and confirm it a little'[20] and he proceeds to offer a re-elaboration of it. At the end of that re-elaboration he says, "This is a sort of contrived approximation whose correctness I do not vouchsafe".[21]

Avicenna's diffidence about proposing any argument for the completeness of the list of ten categories is reminiscent of Simplicius's attitude when he prefaces his own argument with the words, "If, however, anyone desires to hear an inclusive division, which includes these ten genera, perhaps it would run like this."[22] Similar apparently contradictory passages can be elsewhere in Avicenna's writings. In the section of *Al Shifa* dealing with Porphyry's *Eisagoge*, Avicenna first criticises Porphyry for having spent too long drawing comparisons between the different predicables, and then proceeds to follow the very procedure he had criticised. [23] Again, Avicenna argues that a study of the *Categories* does not belong to logic[24] but

[19] Avicenna, *Shifā* 84,4. Translation by Allan Bäck.

[20] Avicenna, *Shifā* 84,4. Translation by Allan Bäck.

[21] Avicenna, *Shifā* 86,13. Translation by Allan Bäck.

[22] Simplicius 67,25. Translation by Michael Chase.

[23] Ibrahim Madkour, *L'Organon d'Aristote dans le monde arabe* 2ième édition (Paris: Vrin 1969), 73.

[24] Tony Street, "Arabic logic", in Dov M. Gabbay and John Woods (eds.), *Handbook of the History of Logic* vol.1 (Elsevier 2004) 523-596, p.541. "Avicenna echoed Alfarabi in questioning the propriety of placing the *Categories* within the Organon, and decided that it should only be treated with the other logical texts due to immemorial custom."

to metaphysics insofar as it is about being, to psychology insofar as it concerns ideas in the mind, and to linguistics insofar as it relates to words; and he proceeds to say that, like it or not, he will follow the customary practice of discussing the *Categories* in the logic section of his book, even though it won't be of much use to the reader.[25]

He begins by dismissing the idea adopted by some people that the mere fact of there being *three* classes is a sufficient basis for both primary and secondary divisions. He then embarks on a methodical process of dividing the categories into their three classes and of subdividing the **A** and **B** classes into their triads of categories.

In his re-elaboration of the widely accepted division, the primary cut into substances and accidents is a dichotomous one, [26] as are almost all of the subsequent cuts (with one exception). Among the accidents, he contrasts those that are not found in their subject by reason of a relationship to some external thing, with those that are found in their subject by reason of a relationship to some external thing. The first of these classes will prove to comprise the members of group **A**. If there is no need of a relationship to an external thing, there may still be a need for a relationship of things within the subject (and if so then we are dealing with the category of Position); or there may be no such need (and then if numeration is

[25] Madkour pp.80-81.

[26] Avicenna, *Shifā* 46,14 Since things are in two divisions: [1] the thing whose essence and reality has no need of being *in* something, like the existence of a thing *in* its subject, and [2] a thing about which there is no doubt that it is *in* something through this characteristic, then everything is either a substance or an accident. .... no thing is an accident and a substance. Bäck translation.

possible we are dealing with the category of Quantity, and if it is not then we have the category of Quality).[27]

The **B** class divides into the categories of Where, When and Having, starting from the class of accidents that are found in their subject by reason of a relationship to some external thing. This class he divides into those cases where the relationship is reciprocal and those where it is not. The latter he divides according to whether the relationship is to a Substance or to an Accident. He argues that there can be no cases where the relationship is to a Substance. The cases where the relationship is to an Accident he divides according to whether the Accident is or is not relational. He

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[27] Avicenna, *Shifā* 84.4–17: This is what they have said, but you have learned that this is something that is a loose approximation. It is however possible to lend support to this approach and to confirm it a little, by saying: Every accident must be either [such that] its Conception stands in need of Conceiving something extrinsic to the subject it has, or [such that] it does not need this. That which doesn't need [the Conception of something extrinsic to its subject] forms three divisions: either [such Conception] exists even though [the accident] doesn't stand in need of it, though it may need the occurrence of a relation to things which are in it and not extrinsic to it; or it does not need [the Conception of something extrinsic to its subject] at all. If it is in need [of this Conception], then this need makes the subject divisible in a certain respect such that it has parts some of which have a variable state in relation to others; this is the category of Posture (*al-waḍʿ*). For the relation of some parts of the body to other parts is such that every one of them has a where relative to the whole; these are the differences that occur to them per se, in so far as they are divisible parts. Translation by Tony Street.

Avicenna, *Shifā* 84,18. As for when the thought of that is not needed for the relationship in which they occur, *either* there is an impression due to its essence [*per se*] making the substance, insofar as, in respect of (that), it comes to make its number possible for it through one (thing) in which there is determined a continuous or a discrete number—and this is the quantity. *Or* it is not like that, and then there is a shape arising in the body whose thought does not need for a relationship to something in potency or actuality to be made for the body at all for its thought to be sound—and this is called quality. Translation by Allan Bäck.

argues that there can be no cases where the Accident is relational. The remaining cases, where the relationship is to a non-relational Accident, he divides on the basis (arrived at earlier) that there are three kinds of non-relational Accident – Quantity, Quality and Position. Where the non-relational Accident is a Quantity we either have the category of When, or the Quantity in question is a container. In the latter case, the container is either such that it is not moved by the motion of the subject (and this is the category of Where), or on the contrary it is such that it is moved by the subject's motion (and this is the category of Having / Wearing). [28]

[28] Avicenna, *Shifā* 85,9. As for what requires a relationship to (something) external, *either* [1] it requires a relationship making the quiddity be said in comparison to what has a relationship to it, and there is here an identical conversion in the sense of the relationship—and this is the relation. *Or* [2] the relationship does not require that. Then here *either* it is relative to substances or to accidents. As for substances, they do not demand due to themselves [*per se*] that a relationship be made for them or relative to them. Rather, they demand [that] for the objects and states in them that are specific to them. So, since the (thing) being considered [is] what is relative to accidents, those accidents are either accidents of the relationship or are different from the accidents of the relationship. As for a relationship to accidents, it is a relationship. So it is of objects that concatenate *ad infinitum*. Nevertheless, the relationship to the relationship in another one [relationship] leads to the relationship to the last thing relative to which there is the relationship. It [the relationship] is firmly fixed in view of the first [thing] that does not have a relationship; and, if not, it would go on *ad infinitum*. The last real relationship is relative to the accidents in which there is no relationship. So it is relative *either* to a quantity *or* to a quality *or* to a position.

Things do not have a relationship to quantities however chance may have it. Rather, if they have a relationship to them, it is necessary that they have a relationship to the quantity making a substance have a *quantum* that is the measure of another substance. It measures it through the measure of its essence or through the measure of its state. Some states of a body do not have a measure fixed in the measure of a body different from the measure of the (first) body. Rather, it is necessary that its instance be a measure that is not fixed. The state is not fixed. Every state (that is) not fixed is called a motion. Therefore, this relationship is *either* through a measure due to whose existence one body comes to be in another body through a state, namely that it "contains it" or "is contained in it", and

Moving on to the case where the non-relational Accident is a Quality we have either the category of Action or that of Passion. And as for the case where the non-relational Accident is a Position, he argues that there are no such Accidents.

With regard to group **C**, Avicenna has already located the category of Relatives as comprising the accidents that involve a reciprocal relationship to something external to the subject. Thus the categories of Action and Passion, on his reconstruction of the widely accepted division, turn out to have a different location from the category of Relatives.[29] So his defence of the commonly accepted division transforms it into a somewhat different division. He has provided a speculative basis for classes **A** and **B**, while showing that class **C** is not a unified group at all. The structure is shown in Figure 4.

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this is the container, *or* through a measure of the state according to what we have explained, and this is time. Therefore, the relationship to the *quantum* has no need either of there being a relationship to the container or to time. The relationship to the container always is either such that a relationship is relative to a container by whose transference [locomotion] it is not transferred nor from which it is inseparable—and it is the "where" [place], and it is a relationship either to a first place or to a second place. *Or* it is a relationship to a container (that is) inseparable in view of (its) transfer [locomotion], and this is like what some of those obtaining a category of "wearing" [having] believe. (This) is like the explanation that the species of categories emanating from the relationship to the *quantum* are either a "where" or a "when" or a "wearing". Translation by Allan Bäck.

[29] Avicenna, *Shifā* 86,14 As for the relationship to quality, it is appropriate to know that not every quality makes [one] substance have a relationship to (another) substance, but rather (that) the quality that is in this one from that one or from that one in this one [does]. When the quality is of one of the two substances in the other, then the state in which the quality comes to be from these (two), is the category of "is acted upon" [passion], while the state from which the quality comes to be is the category of "acts" [action]. Translation by Allan Bäck.

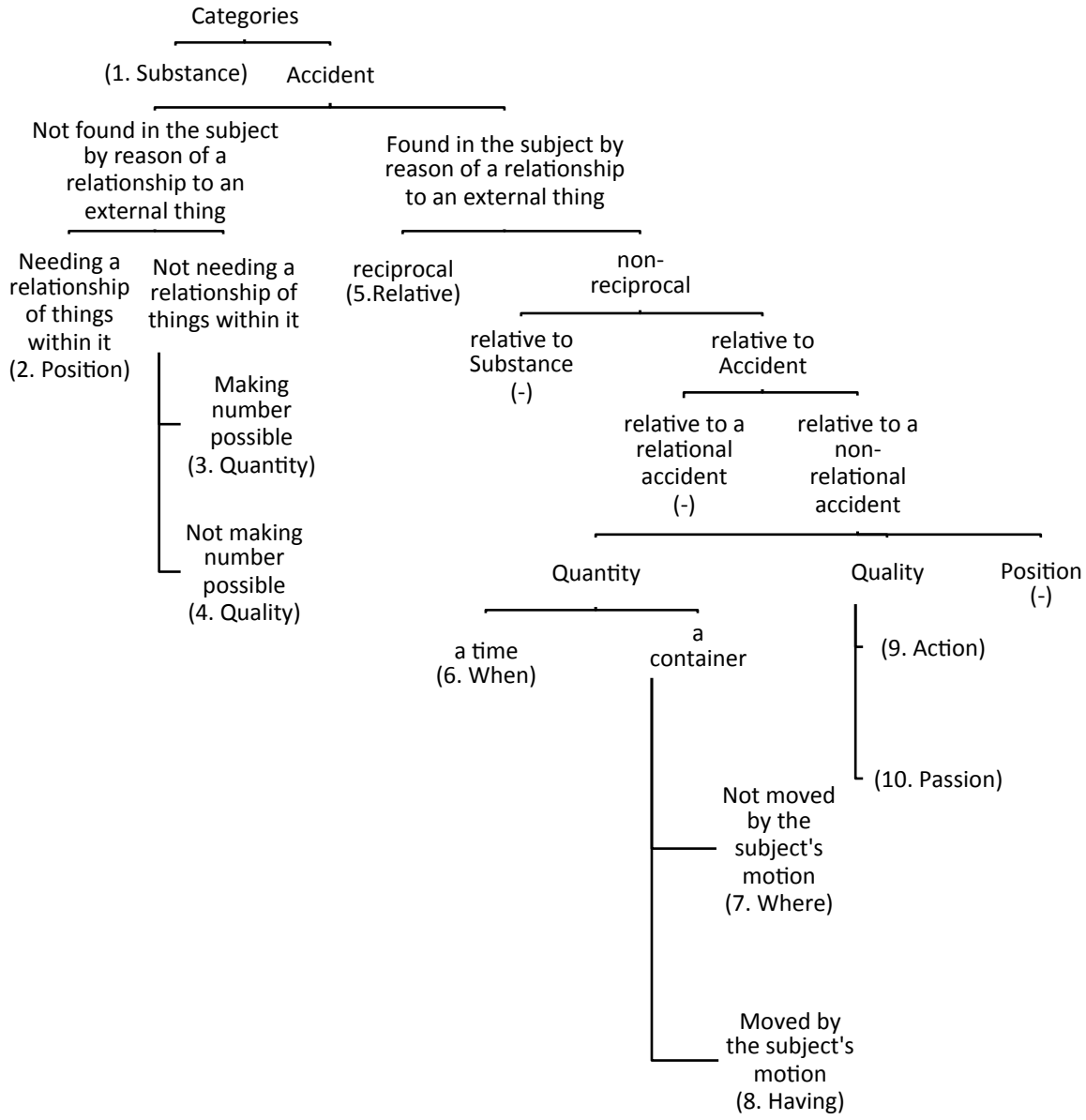

Figure 4. Avicenna's elaboration of the 'widely accepted' division

Avicenna has clarified the basis for the initial division into three triads. He does not use the idea of what both internal and external, but instead uses the basic idea of holding by reason a relationship to an external thing.

The methodology used by Avicenna in his division displays a satisfying rigor. He uses dichotomous division except for his threefold division of non-reciprocal relational accidents that are relative to a non-relational accident; and this division is itself a by-product of two dichotomous divisions – (1) that of non-relational accidents into those that involve and those that do not involve an internal relationship of the subject's parts, and (2) that of non-relational accidents not involving an internal relationship of the subject's parts into those that involve and those that do not involve number. By this means Avicenna ensures that his division will be exhaustive and that its members will be mutually exclusive, and in so doing makes a considerable advance on the widely accepted division's scheme, in which the internal is opposed to the external as well as to what is both internal and external.

Avicenna's methodology is also careful to make the differentiae of lower divisions implicit in those of higher divisions, in accordance with Aristotle's advice that if animals are divided into the footed and the footless, the footed animals should be subdivided on the basis of differences in their feet.[30] Thus Avicenna subdivides the accidents (which by definition inhere in a subject) according to the manner of their inherence, which either is or is not due to a relationship with something external.

[30] Aristotle, *Metaphysics* Z.12, 1038a10ff.

Accidents of the former type – which do not inhere by reason of a relationship to something external – are subdivided according to whether or not they involve an internal relationship of the subject's parts. Accidents of the latter type – which do inhere by reason of a relationship to something external – are subdivided according to whether that relationship is or is not reciprocal. The latter are subdivided on the basis of that to which the accident in question is relative (a substance or accident). And in this last case, the cases are subdivided according to whether the related accident is itself relational or non-relational.

Avicenna himself enunciates three principles concerning the process of logical division. First, division is capable of producing knowledge. Second, a good division does not leap over intermediate classes, as non-dichotomous division are wont to do. Third, a division terminating in the categories cannot be ruled out as impossible on the ground that division always proceeds through genus and species. [31] All of these principles have a bearing on the project of a division leading to the categories. (1) His elaboration of the widely accepted division produces knowledge that is not produced by that division in its unelaborated form. (2) His elaboration shows that, while groups **A** and **B** are preserved in the elaboration, they are not coordinate with each other; they can only appear to be coordinate if we skip some of the steps in the

[31] Avicenna *Shifā* 4,7. Division also is one of the methods conducive for acquiring knowledge through the unknown. Genera have a differentiating division relative to [their] species through their *differentiae* with the order in them preserved, so that there does not occur a leap of degree to what does not come after them. [Division] may also be through *propria* and accidents. Translation by Allan Bäck.

division. (3) And *no* division resulting in the categories can be by species and genus, because by definition the categories do not have genera above them.

While the methodology used in elaborating the division is Avicenna's, some of the substantive assumptions deployed conflict with his known views. These conflicts are evident in the conceptualization of the categories of Position, Action and Passion, and Having.

The word 'position' is ambiguous according to Avicenna. In one sense it is used to mean a thing's being in its place; and he comments that in this sense it picks out the category Where. In a second sense it is used to mean the position of one thing relative to neighboring things; and in this sense it belongs in the category of Relatives. In a third sense, the category of Position identifies a feature of a whole substance, and is not to be confused with the relationships that hold among the substance's parts. The category of Position does indeed involve relationships among the substance's parts, but it would only be by confusing the second and third senses that someone could think that these relationships constitute what Position *is*.[32] Avicenna mounts a general attack on attempts to demonstrate that the last six categories are all essentially relational. He says that to predicate 'Relative' of things

[32] Avicenna, *Shifā* 211,1: Position is said about the shapes arising for body by reason of the relationship of some of its parts to others on [their] sides by reason of the incidence of position in the second sense to its parts, and in general about the existence of some relation in its parts that exists in actuality or in the imagination, so that, when the parts exist in accordance with some known relation, or (when) the body is by virtue of its being possible in it to be imagined parts having some known relation, the shape that is the position will have arisen for the whole by reason of that—and this is the category [of position]. So sitting is a characteristic for the whole sitter, not for some parts of it. Translation by Allan Bäck.

in one of these categories is not to predicate a genus of its species; rather "it is accidental to it that its quiddity ... is said in comparison to something else".[33] Avicenna views the inclusion of the category of Position along with the non-relational categories of Quantity and Quality as mistaken, favoring its inclusion with the five relational categories that are opposed to the category of Relatives. He agrees with those who would group it with Quantity and Quality that Position involves relationships internal to the subject, and thus that it has two features – relationality and internality to the subject. But the question is which of these features is the primary one. Those favoring the widely held division think that Position is characterized primarily by the fact that it is internal to the subject, and secondarily by the fact that the internality in question involves relationships among the subject's parts. Avicenna thinks that Position is primarily characterized by the fact that it consists in the holding of certain relationships, and secondarily by the fact that those relationships hold among the subject's internal parts. The dispute concerns the ordering of differentiae – a question which Aristotle says in the *Posterior Analytics* must be resolved correctly in a good division.[34] Avicenna endorses the Aristotelian rule, saying that 'Genera have a differentiating division relative to [their] species through their *differentiae* with the order in them preserved, so that there does not occur a leap of degree to what does not come after them'. [35]

[33] Avicenna, *Shifā* 67,6.

[34] *An. Post.* II.13, 87a24-35.

[35] Avicenna *Shifā* 4,7. Translation by Allan Bäck.

With regard to Action and Passion, Avicenna does not agree with the idea that these categories constitute two sub-classes of accidents relative to a Quality. Al-Farabi had already dismissed this idea. His argument was that action and passion relate not just to Quality but to all kinds of change including change of Quantity, change of place and substantial change.[36] Avicenna is in agreement with Farabi on this.[37]

And with regard to Having, Avicenna expresses serious doubts about whether it should be included among the categories at all,[38] thereby parting company with al-

[36] Al-Farabi, Paraphrase of the *Categories* transl. Dunlop §38 p.41.

[37] Avicenna, *Shifā* 235,17. As for the category of 'acting [upon]' [action] and 'being acted upon' [passion] .... 236,5. People have disagreed: some of them specify this category through its being necessary that it be changed in quality only. As for what is common to it and to something else, it is of objects occurring in many categories.

236,17. As for the firmly set form of standing (up) and the form of sitting, they are both from [the category of] position, just as the form of burning is from *quale,* and the form of the completion of youth is from *quantum,* and the form of being firmly fixed in place is from the "where". Translation by Allan Bäck.

237,3. This category admits of [mutual] contrariety. The direction of (one) contrary towards (another) contrary differs from the direction of the latter towards (the former) in definition, while their subjects are one, and (where) between them there is something more remote (in) difference. That is like the whitening of the black and the blackening of the white, and like the rising of the low and the sinking of the high. Translation by Allan Bäck.

[38] Avicenna, *Shifā* 235,7. As for the category of having, understanding it is not for me compatible with this project—nor any of the objects that are made like species for it. Rather, they are said of it by participation in the name [homonymy] or ambiguity, just as one thing is said from another, and (as) one thing in another, and (as) one thing of another, and (as) one thing with another. Nor do I know anything making it necessary for the category of having to be a genus for those particulars, nor is an instance of it made necessary in those [examples that have been] mentioned. It is uncertain whether [someone] other than me knows that. So let there here be scrutiny of their books. Then, if some of them make the spurious claim that there are species and make the agreement [synonymy?] of this category in comparison to some of them [the proposed species?] without others, and makes their

Farabi who took the category seriously.[39] Such an exclusion, of course, is consistent with some of the Aristotelian passages in which the categories are listed.

When Avicenna in his own voice presents a conceptualization of the categories, the category of Substance is set against the nine accidental categories, and the latter are divided into two groups: on one side the categories of Quantity and Quality, on the other side the remaining seven categories (or six if we take Avicenna's doubts about the category of Having to imply that he excludes this as a genuine category).[40] All seven of these are seen as conceptually involving a comparison with something other than the subject, but within the group the category of Relatives is seen as depending on the subject's intrinsic nature whereas the remaining six are seen as depending on something extrinsic. He places Position along with the non-reciprocal relational categories, he does not conceive of Action and Passion as being specially related to Quality, and he expresses doubt about Having. His division is shown in Figure 5.

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participation in their name [homonymy] in comparison to the totality or to the others, and [if] by it there is meant that it is a relationship to (something) contiguous (in) some transfer having a relationship to it, then let it be like wearing arms and wearing shoes and being adorned and being clothed (in) a shirt. From it [that] let there be some particular and some universal and some essential, like the state of the cat vis á vis its hide, and some accidental, like the state of man vis á vis his shirt. Let us divide this important task about the ten categories into what is more comfortable for us to divide it into. In it there (will be) room. Translation by Allan Bäck.

[39] AI-Fārābī, *Paraphrase of the Categories of Aristotle* ed. & trans. D M Dunlop, *Islamic Quarterly*, Vol. V.1 (1959), 24,7-15 [trans. p. 40 §36].

[40] Avicenna, *Danesh Nameh* §9: The state of possession (*mulk*), described in terms of something belonging to something else, is a topic that is not yet well enough known to me. Morewedge p.27.

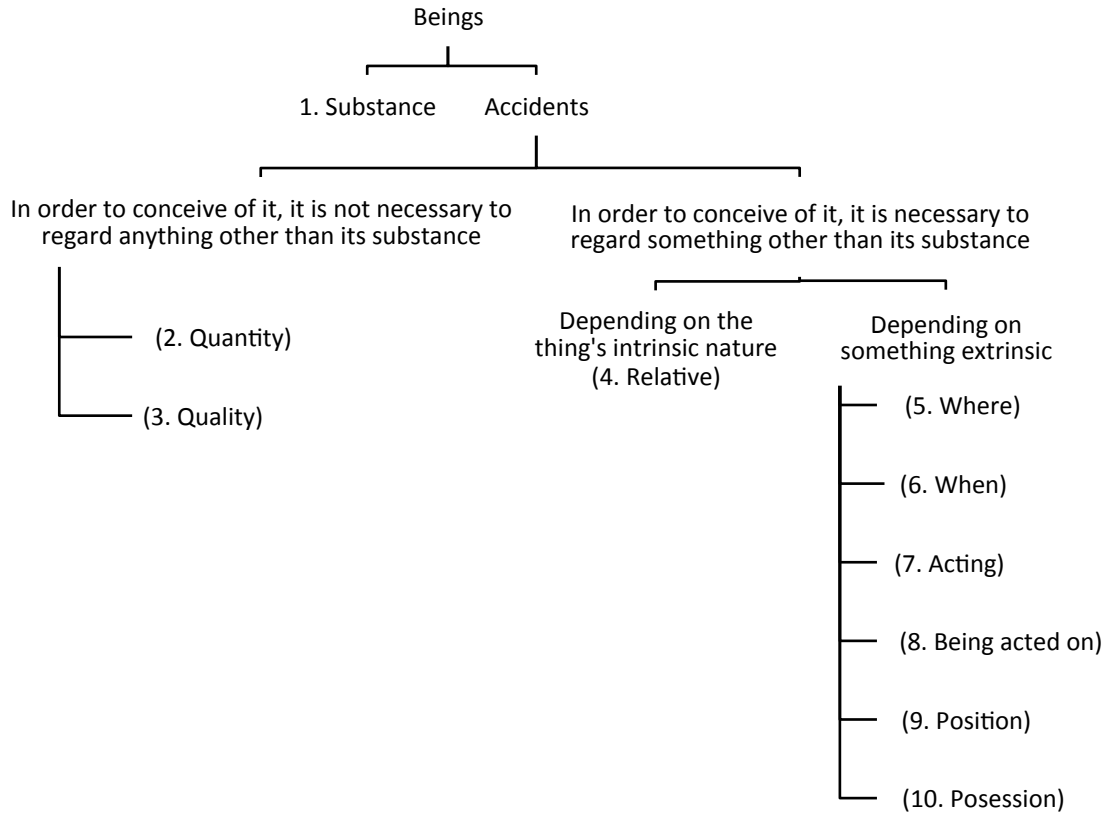

Figure 5. The categories according to Avicenna (*Dānish nāmeh*)

Extensionally, this division is the same as those of Olympiodorus and Kindi up to the point where Relatives are contrasted with the remaining six categories. But Avicenna stops there, making no subdivision of those six groups of Accidents. Thus his division cannot be seen as a contribution to the project of deducing the ten categories by a process of division.

Intensionally, however, Avicenna's scheme exhibits points of difference from those of Olympiodorus and Kindi. His primary division of Accidents, according to whether or not one has to regard something other than the subject, owes more to

Olympiodorus's contrast between the *per* se and the relational than to Kindi's simple / compound opposition. But his dichotomy between Relatives and other relational accidents, on the basis that only the former depend on the subject's intrinsic nature, seems equally removed from Olympiodorus's distinction between pure relations and relations to other things, and Kindi's distinction between relationships that are 'without matter' and those that are 'with matter'.

The relationship between master and slave is one in which the very being of either term refers to the other. It is because of this feature that the master *qua* master is a Relative, and likewise for the slave *qua* slave. Compare this with the category of Where. A man is in a house. But it is not part of the very being of the man to refer to a house, nor of a house to refer to a man.[41] Of course, we can describe the man as an inhabitant and the house as a habitation; then we have a pair of Relatives, since the very being of an inhabitant, as such, makes reference to a habitation, and vice versa. But when we consider the man as a man, and the house as a house, and say the man

[41] Avicenna, *Shifā* 144,5. As for those in some other manner of relationship, they are those to which the relationship is attached and so because of that they come to be *relata*—like power, insofar as it [belongs] to what possesses the power, and knowledge, insofar as it [belongs] to the knower. Each of [these] is in its essence [*per se*] a quality, and, if it is a *relatum*, it is relative to something different from what its relation qualifies, like knowledge: through some letter[41] it comes to be a *relatum* for the knower and through something other than that letter it is a *relatum* relative to what is known. So it is uncertain whether a relation to the (thing) known is inseparable from the knowledge in itself.[41] Knowledge and ability and power and the like—even if each of these is a *relatum*, still it in itself is not a *relatum* relative to that to which it is related in our examples.[41] Rather, there is attached to them some manner of relationship and then through (that) it comes to be a *relatum*. That is by reason of the letter that is included and then joined, just as there is included between man and house an expression of some relationship, and then through it [that relationship] there comes to be a relation between the house and the one possessing the house. Translation by Allan Bäck.

is in the house, we are (according to Aristotle) attributing a Where to the substance that is the man. So the category Where does concern a relationship, and there is a way of locating the terms of that relationship in the category of Relatives. But there is another way in which one term of the relationship is identified as the Where of the other.

The opposition between Relatives and the other relational Accidents, according to Avicenna, rests on the double nature of Relatives: their conception requires that we have regard to something other than the subject, but at the same time they depend on the subject's intrinsic nature, not on something extrinsic. The relationship is within the subject but points to something outside. In this subtle analysis he appears to go beyond his Greek and Arabic sources.

All this is cause for puzzlement, and provokes a number of questions.

(1) Since he is such an independent thinker, why is he writing a commentary on the *Categories* at all? And, given that he thinks the *Categories* does not properly belong to logic, why does he including his commentary in the logic section of the *Shifā*?

(2) In the *Shifā* Avicenna presents two conceptualizations of the categories – the widely accepted division and his own re-elaboration of it – while clearly indicating that neither is satisfactory. Why does he present material which he finds unsatisfactory? And, given that neither of these conceptualizations is the same as his own way of conceiving the categories, why does he present them rather than his own view?

In reflecting on the first question, we need to remember Avicenna's unique position in the tradition of Arabic Aristotelianism. The geographical circumstances of his origins, away from the main centers of culture, as well as his personal cast of mind, made it possible for him to be a remarkably independent thinker.[42] The cast of mind, as it expressed in Avicenna's Autobiography, is captured well by Dimitri Gutas:

> The real purpose of [the Autobiography] is philosophical: While purporting to give details about his early life ... Avicenna is providing a concrete illustration of his epistemological theory. This centers on the ability of some individuals with powerful souls to acquire intelligible knowledge all by themselves and without the help of a teacher through their propensity to hit spontaneously upon the middle term of syllogisms.... The autobiography is written from the perspective of a philosopher who does not belong by training to any school of thought and is therefore not beholden to defending it blindly, who established truth through his independent verification (*hads*) and found that for the most part this truth is contained in the philosophical sciences as classified and transmitted in the Aristotelian tradition ....[43]

He saw himself as belonging to that tradition and this is why he presents some of his philosophical works as belonging to the genre of Aristotelian commentary. An encyclopaedic coverage of what is valuable in Aristotelian philosophy – such as the *Shifā* is meant to be – must cover the *Categories* and must include it in logic on pain

[42] John Marenbon, *Medieval Philosophy: an historical and philosophical introduction* (London: Routledge 2007), 103-105.

[43] Dimitri Gutas, "Avicenna: Biography" in *Encyclopedia Iranica* vol.3 (New York, 1989) 67-70, p.68.

of misrepresenting the Aristotelian corpus as he received it. He is thoroughly entrenched in the doctrines of the Philosopher, and his very rejection of some the commentators' accretions bespeaks a deep fidelity to the philosophy of Aristotle.[44] But even when he is at his most respectful of the traditional ways of doing things, Avicenna always feels free to discard those parts of the tradition which he considers to be confused or otherwise unsatisfactory.

The second question requires a complex answer. Given that he is generally opposed to attempts to 'deduce' the categories, it is not surprising that he should wish to examine one such attempt in detail, in order to illustrate the problems involved in any such deduction. It is, however, surprising that his examination of the widely accepted division should be so lengthy, and that he should bother to re-work the division in the way he does. I think that this re-elaboration serves a double purpose.

On the one hand, I think that Avicenna was aiming not merely to express his personal dissatisfaction with certain elements in the accumulated Aristotelian tradition. He was also exposing the weaknesses in those parts of the tradition that he wanted to reject, in such a way as to convince his readers to join him in breaking with those parts of the tradition. Even though Avicenna did not think that the project of deducing the categories was a worthwhile one, he did think it was worthwhile to show the standard that such a deduction would have to meet. The methodology would at least have to include dichotomous division, in order to meet his own requirements for a satisfactory division. His intention was to show that a

[44] Cf. Tony Street, "Arabic logic", in Dov M. Gabbay and John Woods (eds.), *Handbook of the History of Logic* vol.1 (Elsevier 2004) 523-596, p.535-536.

serious attempt to arrive at the widely accepted division will fail to arrive at precisely that division, and in any case will involve false assumptions.

On the other hand, his re-elaboration of the widely accepted division is a display of intellectual virtuosity – a brilliant intellectual experiment which exposes the weaknesses in the widely accepted division, at the same time as displaying his own critical astuteness and philosophical depth.

Regarding the absence of Avicenna's own conceptualization of the categories from the *Shifā*, I think it is helpful to attend to the fact, as Madkour reminds us, that Avicenna's aim in *Al-Shifā* is not primarily to express his own views – as it is in his other works.[45] In describing his aims in the *Shifā* Avicenna says that he will base his comments on philosophical principles he has arrived by himself, principles which have also been admitted by most previous thinkers. He says he will avoid lengthy discussions of doctrines that are obviously false, but he will cover all that is worthy of preserving from the ancients – either in its usual context or moved to a more appropriate one. And he says that he will include some of his own ideas and personal research – even in logic.[46] Besides, his own 'division' is in large parts merely an enumeration and does not pretend to be a deduction by division, and so it

[45] Madkour p.24. "Pour en avoir une idée exacte, il suffit de songer à un commentaire de Thémistius ou de Simplicius, où les théories aristotéliques se trouvent rapprochées des doctrines néoplatoniciennes. Dans *al Chifâ*, Ibn Sînâ commente donc Aristote à la manière d'un Alexandrin et cherche à élaborer une synthèse nouvelle embrassant les divers systèmes philosophiques antérieurs. Au contraire, dans ses autres écrits, il est plus original, plus personnel et ne donne que le fond de sa pensée."

[46] Madkour p.22.

would not have been to the point to mention it a context that is primarily focused on attempts to 'deduce' the number and identity of the categories.

Avicenna was the initiator of a line of development in which the focus of interpretative attention shifts from the works of Aristotle to those of Avicenna himself.[47] This kind of shift is not unknown in the history of interpretation; but it does signal a figure of the very greatest importance; and we see the symptoms of this shift in his treatment of the division of the categories.[48]

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[48] I thank Allan Bäck and Tony Street for helpful comments.

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What if that (is) why?
Avicenna's taxonomy of scientific inquiries

Riccardo Strobino

Introduction

In this paper I shall look at how a few key Aristotelian ideas about demonstration and definition are received and reelaborated by Avicenna (d. 1037)– in his logical writings. The problem I have chosen to discuss has to do chiefly with issues that come up in the second book of the *Posterior Analytics*, especially in chapters B1-10, which represent in themselves a self-contained treatise on the relationship between definition and demonstration. The textual basis of this study is Avicenna's Book of Demonstration (*Kitāb al-Burhān*), which is the fifth section of the logic, from the Book of the Cure (*Kitāb al-Shifāʾ*)–. I shall not be concerned here with the general problem of the reception of the Aristotelian theory of demonstration in the Arabo-Islamic philosophical tradition: suffice it to say that its trajectory starts as early as Al-Kindī, and through the decisive mediation of Al-Fārābī, reaches its culmination with Avicenna.

In what follows, I shall first discuss Avicenna's taxonomy of scientific inquiries (§ 1); next I shall look at how two fundamental types of scientific inquiries - ifs and whats - are connected with each other through demonstrative middle terms - whys - (§ 2); I will then show how the distinction between definition and demonstration turns out to be rooted in the more fundamental characterization of scientific knowledge as conception and assent (§ 3); last, I shall present Avicenna's attempt to reconcile the irreducibility of the two domains of definition and demonstration within the integrated framework of scientific syllogisms

1. Taxonomy of scientific inquiries

Science, on the Avicennan model following the *Posterior Analytics*, is a structured body of connected necessary truths. Some are unmediated, some are not. The latter are obtained as conclusions of proofs. Proofs are deductive structures, typically chains of syllogisms, whose premises are either primitive truths, previously (in a logical, not necessarily chronological order) proved truths or combinations thereof. A definitional feature of scientific knowledge is certainty. Certainty is not related to the necessity of the connection between premises and conclusions, which is guaranteed in and of itself by the logical form of syllogistic arguments by means of which the latter are derived from the former, but rather with the content or matter of both. Certainty of primitive truths is assumed and ultimately relies on the architecture of the world and our representation of it–; certainty of derived truths is guaranteed by the fact that, whatever the character of the premises of a valid argument, that character is preserved and transmitted to the conclusions. Certain knowledge is knowledge of something which cannot be correctly believed to be otherwise–. Thus, the model of the *Posterior Analytics* offers us two fundamental items to deal with in scientific knowledge: (i) primitives and (ii) derived conclusions. The theory of scientific knowledge, therefore, is polarized around two notions, which determine two subordinated fields of study: a theory of principles, which mainly focus on the paradigmatic type embodied by definitions, and a theory of demonstration.

In the internal articulation of a science, three elements can be singled out, which contribute to define also the hierarchical organization according to which sciences are subordinated to one

another and what fixes the boundaries between them. The internal structure of a science reflects the logical structure of premises and conclusions that are connected by means of syllogistic arguments. Premises have a subject-predicate form. Syllogisms are two-premise arguments whose premises share a middle term (*ḥadd awsaṭ*). The conclusion contains the subject (*mawḍūʿ*) of the so-called minor premise (*muqaddama ṣughrā*) and the predicate (*maḥmūl*) of the so-called major premise (*muqaddama kubrā*). This tripartite model is reflected in the general structure of scientific discourse. In a given science, what we do is prove that certain predicates belong to (the elements of) a domain, by appealing to certain preliminarly assumptions. Among these assumptions, beside general logical principles, the ones that have a specific content and are peculiar to a science are definitions (I shall not be concerned in the present context with existential presuppositions, which also play a role). Only certain predicates are suited to enter scientific demonstrations. It is not the concern of a scientist to establish whether a subject has a contingent feature F, but rather the question is about essential features of things. 'Essential' in Avicenna has two senses that are relevant to this context: (i) constitutive (i.e. part of the definition), or (ii) *per se*. It is the latter type which is the primary focus of a demonstrator. Proving that *per se* attributes belong to the (objects of the) domain of a given science is his task. This is done, ideally, by looking at the definitions of those predicates. The set of constitutives of P is expressed in the definition of P. If we use, in a way to be further illustrated below, the set of constitutives in a particular kind of syllogism, then we can prove that P belongs to a certain item S in the domain of a science, as an attribute *per se* of S. This is all there seems to be to scientific demonstration: proving that P belongs to S by looking at the definition of P. That the situation might be more complex than that is one of Avicenna's own

concerns, but this is the conceptual environment in which he operates.

In *Burhān* IV,1 Avicenna sets out to discuss the classification of scientific inquiries (*maṭālib*) that opens the second book of the *Posterior Analytics* (*An. Post.* B1, 89b23-25). The list covers the paradigmatic types of questions, and of knowledge, that are involved in scientific discourse. The classification follows Aristotle's own list, but there is a shift in the terminology and a much more detailed discussion of the mutual relations between different types of inquiries and their logical ordering. We have, as in Aristotle, four fundamental types of inquiries: (1) absolute existence, (2) predication, (3) search for the cause and (4) definition. In Avicenna's own terminology these are formulated as follows:

1. simple if-question	(*hal muṭlaq* or *hal basīṭ*)	εἰ ἔστι	if
2. compound if-question	(*hal murakkab*)	ὅτι ἔστι	that
3. why-question	(*limā*)	διότι/διὰ τί ἐστι	why
4. what-question	(*mā*)	τί ἐστι	what

In the following I shall always refer to S as the minor term, M as the middle term and P as the major term of a syllogistic argument. The simple if-question typically covers the existence of S (but, as we shall shortly see, also that of P, and in a peculiar sense that of M). The compound if-question is the paradigmatic logical formulation of the bits of knowledge we seek to establish demonstratively, i.e. predications of the form S is P that feature, as the conclusion, in a particular kind of syllogism. Why-questions represent the distinctive feature of scientific knowledge, according to the characterization given in *An. Post.* A2 (necessary knowledge prodiving the cause)

and are supposed to provide the justification of predicative claims. What-questions are connected to why-questions because, ultimately, the reason for the fact established in the conclusion of a demonstrative syllogism will have to be (somehow related to) the definition of the major term.

The first two questions fall within the more general heading of if-questions: in one case what is at stake is absolute existence (of the subject or of the predicate), whereas in the other, what is sought is whether a subject exists in a certain state, i.e. whether a certain predicate belongs to it. The latter corresponds to Aristotle's that-question–. Each of the two if-questions is followed by a why-question, so that one can ask, once the existence of S or the fact that S is P is established, why it is the case that S exists or why it is the case that S is P. What-questions are connected, in a way to be specified, both to if- and to why-questions–.

(i) ***If-questions and why-questions***

Avicenna first discusses the relation of why-questions to if-questions. Why-questions are further internally articulated in such a way that what one seeks can be one of the following:

3.1.1 cause of the existence of S absolutely (judgment only)

3.1.2 cause of the existence of S absolutely (judgment and fact)

3.2.1 cause of S's being P (judgment only)

3.2.2 cause of S's being P (judgment and fact)–

The first division reflects the distinction between (3.1) simple and (3.2) compound if-questions. The second division, internal to each pair, concerns whether what is sought is merely a justification of the conclusion (3.1.1) that S is or (3.2.1) that S is P, or whether one is searching not only a justification of the claim but also the real cause of the fact (3.1.2) that S exists or (3.2.2) that S is P.

This classification is also intimately connected with the well-known distinction between demonstration of the fact (*burhān al-an*) and demonstration of the reason why (*burhān al-limā*) which Avicenna discusses at length in *Burhān* I,7, and obviously reflects Aristotle's own distinction between knowledge of the *hoti* and knowledge of the *dioti* (*An. Post.* A13) In Avicenna, the model is extended so as to cover not only the predicative case (S is P) but also existential claims (S is). An interesting feature of his discussion is that the two main types of why-question should be addressed by appealing to arguments with a fundamentally different logical form. Why-questions concerned with merely existential claims should be formulated as a particular kind of conditional syllogisms (*qiyasāt sharṭī istithnā'ī*), i.e. as arguments of the form 'if A, then B; but A, therefore B', where the fact to be established is expressed by the consequent B, and the cause, i.e. the target of the why-question itself, is expressed by the antecedent A. On the other hand, why-questions covering the predicative case are formulated with respect to a standard syllogistic structure, where the cause being sought is expressed in the middle term. In both cases, the antecedent/middle term provides either a merely logical justification for the consequent/conclusion, or it also picks out the real cause of the fact expressed in the consequent/conclusion.

(ii) ***If-questions and what-questions***

After discussing the relation between why-questions and if-questions and the logical structures by means of which the former are articulated, Avicenna identifies the relations between what-questions and if-questions. Again, what-questions follow both simple and compound if-questions, although here the picture is more complex. First, the what-question naturally comes after the simple if-question with respect to (the existence of) S, a point that Aristotle makes in *An. Post.* B1 (89b

32-4). Once it is known that something exists, one is entitled to ask what it is. There is a sense, though, in which what-questions are prior even to simple if-questions, because before asking if S exists, it is necessary to know what 'S' means.

Thus, a natural ordering seems to be the following:

4.1.1	what-question^{name}	meaning of 'S'
1	simple if-question	existence of S
4.1.2	what-question^{essence}	essence of S

It is plausible, however, that one might ask what-questions not only with respect to simple if-questions, but also with respect to compound if-questions, i.e. with respect to claims of the form 'S is P'. In this connection, according to Avicenna, there is a sense in which what-questions are posterior to compound if-questions, too. In that case, what one asks is either what the major term P (essence/definition) is or what the middle term M is (identification of the middle term that provides the essence/definition of P).

In the Avicennan reelaboration of the Aristotelian model of scientific knowledge, first the fact that the subject exist (*halīya*) and then its quiddity (*mahīya*) must be available. Then the business of scientific investigation is to prove of the subject its *per se* attributes (*ʿawāriḍ dhātīya*). Interestingly, this operation, i.e. asking *whether* S is P (when P is a *per se* attribute of S) is parallel, according to Avicenna, to asking the simple if-question with respect to P itself–. In other words, when at stake is the question whether P belongs to S, at stake is also the question whether P, as an attribute, exists in the sense of being instantiated by something. Demonstrations are about *per se* attributes of the items falling within the domain (the genus) of a science. Such attributes exist only

within those subjects or in hierarchically superordinated knots of the branch of the porphyrian tree to which those subjects belong. Hypothetically, if the attributes were not to be found there, i.e. if an accident *per se* of S did not belong to S or to something that is entailed by S (its genus, the genus of its genus and so on), then there would be no space for them in the realm of existence. If they exist, they exist only *as attributes* of that of which they are attributes *per se* or of a 'superior' of the latter. Therefore, proving that P, a given *per se* attribute of S, belongs to S, is in fact equivalent to proving that P exists absolutely. Avicenna illustrates the case with the example of a geometrical figure. In asking a compound if-question where the terms involved are 'triangle constructed on a segment whose extremes are the centres of two intersecting circles' (= S) and 'equilateral triangle' (= P), one is also establishing the possibility of the existence of an equilateral triangle in itself–. Thus, in the compound if-question concerning whether S is P, a simple if-question concerning whether P exists absolutely is involved. The next natural step will be to ask the what-question with respect to P's essence. The relation between what-question and compound if-question can be therefore represented as follows:

4.2.1 what-question^{name} meaning of 'P'

2 compound if-question S is P

4.2.2 what-question^{essence} essence of P

Therefore, the two what-questions with respect to the predicate term P, i.e. what P means and what P really is, stand to the compound if-question whether S is P (existence of S in a state, *bi-ḥāl*, i.e. P's belonging to S) in the same way in which the two what-questions with respect to the subject-term S, i.e. what S means and what S really is, stand to the simple if-question whether S exists

absolutely or not.

A way to look at the problem is therefore to proceed by noting that Avicenna seems to be interested in covering systematically two set of issues (ifs and whats) with respect to the extremes -S and P- of a demonstrative syllogistic structure, and in explaining in what way the questions about absolute existence and predication should be addressed, what they presuppose (knowledge of the meaning of the names of the terms involved), and what the pave the way to (knowledge of the essences/definitions of the terms involved).

(iii) ***The middle term***

Once all these questions are answered, it still remains to be determined in which way they are connected to one another. The connection is provided by the peculiar nature of the middle term, which in the context of demonstrations expresses the cause justifying the conclusion, either from the logical standpoint alone as in any syllogism seeking to establish a conclusion (demonstration of the fact) or both from the logical standpoint and with respect to the real connection of facts (demonstration of the reason why). Avicenna seems to be concerned primarily with the role of the middle term in the situation picked out by 3.2.2, i.e. when what is sought is the cause of S's being P both with respect to judgment and with respect to facts, although in principle nothing seems to prevent the model from being applied also to the remaining cases. Consequently, Avicenna is also interested in identifying the correct relation holding between if-questions and what-questions in the case of the middle term. In this case, too, the what-question follows the if-question. To explain why this is the case, one has to keep in mind the relations outlined previously, because the analysis of middle terms runs parallel to them.

Consider an argument of the form 'S is M, M is P; therefore S is P–'. The conclusion is the answer to a compound if-question. In order to prove that S is P, what is needed is *a* middle term. Thus, answering affirmatively to the question 'is S P?' is equivalent to answering affirmatively to the question 'is there a middle term M, such that S is M and M is P?'. The first step in the proof that S is P is equivalent to establishing the existence of a middle term. The argument as it stands, however, is not a proper demonstration (of the reason why S is P) until we we are able to answer the why-question with respect to the claim that S is P by providing *the* right middle term that expresses the cause of S's being P. The second step, therefore, consists in asking the what-question with respect to the middle term–.

2 compound if-question S is P 1 simple if-question existence

3.2.2 why-question why S is P 4.3 what-question^{term} *what* M is

As regards the what-question, however, the terminology is used here with some degree of equivocity. In fact, two questions overlap. Ideally, in the Aristotelian model, the middle term that answers the why-question with respect to the claim that S is P, is the definition of P. In one sense, therefore, a what-question comes up in this connection because when we ask why S is P, we need to determine what P is. This is a proper what-question concerning the (essence) of the predicate term. Now it turns out that the answer to this question is achieved when one identifies what the middle term is (not its definition, but the term itself). And this is also referred to in this context as a what-question, but it is not such in the sense of being a question concerning the definition of the middle term.

In the case of the middle term, the what-question applies to it in a different sense. At stake is

not what the middle term is in the sense of providing a definition of M, but rather in the sense of identifying the correct term that yields the conclusion of the syllogism and provides the cause of the fact expressed in the conclusion. With this caveat in mind, the relative ordering holding between the compound if-question, whereby one asks whether S is P, and the corresponding why-question, whereby one asks why S is P, is reflected by the relative ordering between the simple if-question, concerning the existence of *a* middle term (which warrants the conclusion that S is P), and the what-question relative to *the* middle term (which not only warrants the conclusion that S is P, but also provides the reason of S's being P). This line of argument is implicit in Avicenna's claim that what-questions with respect to the middle term follow if-questions either in potency or in act. When one answers affirmatively to a compound if-question of the form S is P, one is potentially committed to the existence of a middle term, whatever it may be, whereas when one asks why S is P, one is committed to providing the middle term that expresses the cause, whose existence has been granted in potency at the previous step (because S's being P entails the existence of an M such that S is M and M is P). Thus, the relation between compound if-questions (is S P?) and why-questions (why is S P?) is parallel to the relation between simple if-questions (is there an M?) and what-questions (what$^{\text{term}}$ is M?) with respect to the middle term. The latter in fact is an improper what-question intended to provide the answer to the proper what-question relative to P (what$^{\text{essence}}$ is P?), which counts on this model as the reason of P's belonging to S, namely of the scientific conclusion to be established. The simple if-question relative to the middle term is entailed by - i.e. potentially contained in - the compound if-question 'is S P?', whereas the what-question relative to the middle term is entailed by - i.e. potentially contained in - the why-question 'why is S P?'. Both

if- and what-questions concerning the middle term are potentially related to if- and why-questions relative to the conclusion. This is why Avicenna claims that the why-question, on the one hand, is in potency a what-question asking what the middle term is, while on the other hand it is a why-question in act with respect to what is stated in the conclusion.

To sum it up, given a statement of the form 'S is P' as a conclusion of a demonstrative syllogism,

2 the compound if-question *actually* asks whether S is P

1 i.e. it *potentially* asks whether M exists

and having established that S is P (i.e. that there is a middle term)

3.2.2 the why-question *actually* asks why S is P

4.3.1 i.e. it *potentially* asks what^{term} M is

4.3.2 the what-question^{term} *actually* asks what^{term} M is

In the end, therefore, demonstrative knowledge of the conclusion providing the cause requires the middle term to be known in act. When the latter is known, demonstrative knowledge that S is P and why S is P is achieved. Thus, the types of scientific questions concerning the middle term are analogous to those described above for the subject term and the predicate term of demonstrative syllogisms, the only difference being that what-questions in the case of the middle do not aim at the definition of the middle, but at the term itself.

(iv) Summary

The relations between the four types of sceintific inquiries can be summarized as follows (in

bold are the four Aristotelian inquiries):

Order	Type of question	What is sought	Group
(i)	what-question^{name} (S)	meaning of 'S'	4.1.1
(ii)	**simple if-question** (S)	existence of S	1.1
(iii)	why-question (S)	cause of the existence of S absolutely	(J) 3.1.1
(iv)	why question (S)	cause of the existence of S absolutely	(J+F) 3.1.2
(v)	**what-question**^{essence} (S)	essence of S	4.1.2
(vi)	what-question^{name} (P)	meaning of 'P'	4.2.1
(vii)	**compound if-question**	S is P	2
(viii)	simple if-question (P)	existence of P	1.2
(ix)	simple if-question (M)	existence of M	1.3

(x) why-question cause of S's being P (J) 3.2.1

(xi) **why-question** cause of S's being P (J+F) 3.2.2

(xii) what-question^{essence} (P) essence of P 4.2.2

(xiii) what-question^{term} (M) M (in potency) 4.3.1

(xiv) what-question^{term} (M) M (in act) 4.3.2

The latter ultimately gives the answer to (xi)

This list covers the spectrum of things that can be sought and known. Those can be further grouped in clusters of questions that correspond to the three fundamental types introduced by Avicenna in his analysis of *An. Post.* B1-2 (I will list if-questions under the same heading, even if in fact compound if-questions are taken to be a class in themselves).

If-questions

(ii) **simple if-question** (S) existence of S 1.1

(viii) simple if-question (P) existence of P 1.2

(ix) simple if-question (M) existence of M (in potency) 1.3

(vii) **compound if-question** S is P 2

Why-questions

(iii) why-question (S) cause of the existence of S absolutely (J) 3.1.1

(iv) why question (S) cause of the existence of S absolutely (J+F) 3.1.2

(x) why-question cause of S's being P (J) 3.2.1

(xi) **why-question** cause of S's being P (J+F) 3.2.2

What-questions

(i) what-question^{name} (S) meaning of 'S' 4.1.1

(v) **what-question**^{essence} (S) essence of S 4.1.2

(vi) what-question^{name} (P) meaning of 'P' 4.2.1

(xii) what-question^{essence} (P) essence of P 4.2.2

(xiii) what-question^{term} (M) M (in potency) 4.3.1

(xiv) what-question^{term} (M) M (in act) 4.3.2

Following the model of *An. Post.* B2, where Aristotle associates if- and that-questions with the search for a middle term and why- and what-questions with the search for *the* appropriate middle term, Avicenna's revised taxonomy, too, is polarized around two fundamental types of questions: ifs and whats. On the one hand, there are things we need to establish and prove, paradigmatically as the conclusions of syllogisms (ifs). In order to do so, there are other things that we need to know and assume, typically definitions (whats). Furthermore, in order to achieve proper knowledge of facts, we need to be able to provide causal justifications (whys). The ideal

answer to a why-question is (derivatively) the answer to a what-quesition concerning the middle term, and properly speaking a what-question concerning the predicate term, whose definition is sought and given through the middle. Thus, why-questions are explained away when we answer to the appropriate what-questions. The latter give us the justification for our if-claims, which eventually express the genuine facts that a scientific theory has to establish. Thus, the two types of fundamental questions - ifs and whats - should ultimately be traced back to two distinct domains of scientific knowledge: demonstration (ifs) and definition (whats).

2. The middle term

On this model, a pivotal role is played by the middle term. This is especially true of the paradigmatic types of questions that are the object of scientific discourse, i.e. compound if-questions corresponding to the conclusions of demonstrative syllogisms. What one wants to know is whether certain attributes *per se* belong to their subjects, within a given scientific domain (a genus). In this connection, an issue that seems to haunt Avicenna in his discussion of this part of the *Posterior Analytics*, is the claim, which some might want to put forward, that the kind of causal explanation provided by demonstrative middle terms should always be given by means of definitions, and conversely that definitions always provide the right causal explanation of the fact expressed by the conclusion. The question, in other words, is whether seeking the cause of S's being P and seeking the definition (typically of P) coincide, or - which is the same - if giving the

cause always means giving the definition, and giving the definition always means giving the cause.

Avicenna devotes a remarkable amount of space to challenge the claim in both directions providing, on the one hand, counterexamples of demonstrative middle terms that express the cause without being definitions, and challenging, on the other hand, the claim that definitions are sufficient conditions for facts to be established demonstratively. The project, I believe, is to show that the model outlined at the beginning of this paper is to some extent only an idealization, and that in fact, what is needed to establish scientific claims, on Avicenna's reading of the Aristotelian framework, is much more complex a process, involving various types of middle terms and a variegated set of epistemological inputs.

The conjunctive claim that Avicenna wants to reject is that in a demonstrative proof (1) all why-questions necessarily involve genuine what-questions and (2) all genuine what-questions (not just concerning the meaning of names, but aiming at the essence) are sufficient to answer why-questions, i.e. as soon as one knows the definition of the predicate, one already has the cause of its belonging to the subject. On his view this would be equivalent to the claim that, in demonstrations, middle terms are definitions and vice versa. Some of the arguments put forward in the discussion of this topic, albeit structurally clear, do not offer examples to illustrate clearly what Avicenna is referring to, but I shall nonetheless attempt a reconstruction.

In order to refute the first claim, namely that middle terms that express the cause in demonstrative proofs must always be definitions, Avicenna puts forward a number of typological counterexamples, by presenting cases in which the logical properties of the middle terms involved in a demonstration are such that it cannot count as a definition, although it provides the cause

needed to explain why the predicate belongs to the subject. Four such types are discussed, and the arguments suggest also that the very notion of definition at stake in this context might be understood according to two different senses, namely as a definition through genus and differentia or as a definition through matter and form–.

First, in demonstrations, middle terms are to be found which are neither definition of the predicate nor constitutives of its definition, whilst still being causes in virtue of which the predicate belongs to the subject of the conclusion. To illustrate this case, Avicenna suggests that in the hierarchical structure of a porphyrian tree, an intermediate genus can play the role of middle term in a demonstration. If M is an intermediate genus, P a higher genus and S is something of which M is predicated, then P is also predicated of S. In such a case, M would not be a definition of P, but would still provide not only a logical, but also a factual justification of P's belonging to S. In other words, if there is an M in between P and S (where S is not necessarily a species of P or M), then since M entails whatever is superior to it, as a result, if M is predicated of S, P will also be predicated of S. In a case like that, however, the way in which the connection between P and S is proved is not by way of predicating of S the definition of P, but rather only something that entails P.

Second, the same line of reasoning applies to propria. If P is a proprium of S, in order to prove P of S, the middle term in the corresponding demonstrative syllogism need not be a definition of P. A middle term M which is a proprium would suffice. This case, according to Avicenna, is exemplified paradigmatically by the relation between the terms 'triangle' (= S), 'having such-and-such a perimeter', i.e. being a geometrical figure with a certain specified shape, = M), and

'having the sum of the internal angles equal to two right angles' (= P). The triangle has such-and-such a shape; whatever has such-and-such a shape has the sum of the internal angles equal to two right angles; therefore the triangle has the sum of the internal angles equal to two right angles. Whatever M might be like in this context (possibly 'three-sided plain figure'), it is neither genus nor differentia, nor matter, nor form of P, namely of 'having the sum of internal angles equal to two right angles'. Nonetheless, a middle term of this sort is sufficient to prove that P necessarily belongs to the subject S.

Third, middle terms might embody other types of causes, for instance efficient or final causes, which are certainly necessitating causes, i.e. causes that make something belong necessarily to something else, without being constitutive elements of the essence of the former. An example of this kind is the stereotypical case of the eclipse–. If we take the triple 'moon' (= S), 'interposition of the earth between the moon and the sun' (= M), and 'eclipse' (= P)–, M is sufficient to prove P of S, although it is not, strictly speaking, the definition of P, but rather only a necessitating cause (*ʿilla mūjiba*)–.

An interesting claim, in this connection, is that this sort of necessitating cause might be regarded as a differentia, even if in fact it is not. As will become clear later, the reason for this claim is that there is one type of definition of the major term, which in fact represents the ideal middle term in demonstrative proofs, whereby a complex relation between two facts is expressed: one is the counterpart of genus and tells us *what* sort of thing the predicate is, the other expresses the real cause of the former, and might be taken as the counterpart of a differentia. Their combination yields something similar to a definition *per genus et differentiam* of P which ultimately explains why P

belongs to S. However, Avicenna claims here that, strictly speaking, these quasi-differentiae are not predicated of their subjects in the same way in which genuine differentiae are. Human beings are mortal rational animals, and for this reason they are rational (the differentia is part of the definition, *and* is predicated of whatever the definition is predicated of). But interposition or contact, although they come up in the definition of eclipse and of combustion, are not in fact said either of eclipse or of combustion, unless in an oblique way, in the same way in which fever is said to be caused *by* a putrefaction and not to be a putrefaction. Yet, both middle terms are sufficient to prove that the moon suffers eclipses when the earth is interposed and that woodden logs burn when they are in contact with fire–. It will turn out, in the end, that these complex constructs, following hints in Aristotle and a more elaborate discussion in the commentary tradition (Philoponus), occur both in demonstration and definition, the difference being the two distinct canonical forms in which they have to be arranged in one or the other.

Fourth, Avicenna makes a general claim about the difference between something's being a cause of the quiddity of something else or a cause of its existence. Genera and differentiae are the causes of quiddity, insofar as they express formal relations between terms, i.e. the counterparts of quiddities as such, regardless of their existence. Efficient and final causes are on the other hand the causes of existence. The former (genera, differentiae, parts of differentiae) are constitutives of the essence (*muqawwimāt lil-dhāt*) and are included in the definition of a thing. The latter are not included in definitions but fall under the notion of a description, i.e. a characterization of something by means of accidental attributes–. It seems therefore that in order for us to be able to talk about facts proper, the recourse to descriptions is an ineliminable feature of scientific discourse.

The upshot of this strategy is that unless one is prepared to call not only genuine definitions but also descriptions 'definitions' - in which case the whole domain of demonstrative middle terms would be covered-, the claim that whenever something is a demonstrative middle term providing the cause it is a definition (of the major term) turns out to be false, because several types of middle terms that feature in demonstrative proofs (intermediate genera, propria, efficient and final causes) perform their function (they justify both the conclusion that S is P and provide the reason why S is P) without being definitions.

After providing counterexamples to the first claim, Avicenna discusses and rejects the converse claim that whenever a definition is used as a middle term in a demonstrative syllogism, this provides the cause of the predicate's belonging to the subject. The basic contention is that if, whenever one has access to the definition of a predicate one is also in a position to prove that predicate of the subject, then the very idea of the irreducible character of demonstrative proof would be undermined. Avicenna stresses in particular the idea that definitions almost never suffice, in and of themselves, to prove that what they define belongs to a certain subject. Indeed the burden of proof is typically discharged on the minor premise, i.e. the premise stating that the middle term M [= definition of the predicate, henceforth Def(P)] belongs to S.

In fact, if such a claim were to be true, the definition of P would be in and of itself a sufficient condition to prove that S is P. For instance by merely knowing what it is for something to have the sum of the internal angles equal to two right angles (= P), one would be able to associate that notion with the notion of a triangle (= S). Again, by merely knowing the definition of 'equal' (= P), one should be able to prove that it belongs to two equilateral triangles that are congruent (their

relation being *tanāẓur*) (= S). This claim might hold true in certain situations, but it certainly does not in many others. In the case of geometrical proofs, for instance, understanding that two triangles (or any two other figures) are congruent might require more steps and not just be evident because one knows the definition of equal and the definition of a triangle. The major premise provides a suitably rich characterization of the major term (definitional or non-definitional), but then the real requirement of scientific demonstrations is to establish firmly the minor premise, whereby that characterization is predicated of the minor term. Proving the latter is in most cases a process that requires much more than simply positing the definition of P as a middle term. In order to see why this is the case, let us consider the following argument.

First, Avicenna maintains the principle that

(i) It is impossible to prove P (if P has a definition or a description) of S unless by positing Def(P) or Des(P) as a middle term between S and P

which means that if one is to prove that S is P, then Def(P) or Des(P) must apply to S.

The justification for (i) is that

(ii) if Def(*x*) or Des(*x*) is not affirmatively predicated of *y*, then *x* is not affirmatively predicated of *y*

i.e. by contraposition

(iii) if *x* is affirmatively predicated of *y*, then Def(*x*) or Des(*x*) is affirmatively predicated of *y*.

On the other hand, it also true that

(iv) if Def(x) or Des(x) is not negatively predicated of y, then x is not negatively predicated of y

i.e. by contraposition

(v) if Def(x) or Des(x) is affirmatively predicated of y, then x is affirmatively predicated of y.

Now, (iii) and (v), taken together, yield

(vi) Def(x) or Des(x) is affirmatively predicated of y

iff x is affirmatively predicated of y.

This principle seems to be plausible. In particular, (iii) seems to provide a justification for (i). On the other hand, the question of our assenting to the minor premise depends, on this model, on (v). The question is not the plausibility of the conditional statement (v), but the truth of its antecedent. People who claim that having the definition of P as a middle term in a demonstrative syllogism is sufficient to prove that P belongs to S, are implicitly assuming that the antecedent of (v) is satisfied as soon as we have a definition of P. This is obviously not the case. The point is precisely that we need to be able to affirm that Def(P) or Des(P) belong to S before coming to the conclusion that P belongs to S. And proving that does not depend on our having Def(P). We need to be able to establish that Def(P) is predicated of S.

Having a definition is not a sufficient condition to prove P of S. Positing a definitional characterization of P as the middle term does not warrant that P is demonstratively predicated of S and understood to be so. The problem has deep epistemic implications. If the middle term is a definition of the major term, as in this case, the major premise expresses a general claim about the

relation (of convertibility) between a term P and its own definition. The minor premise, on the other hand, will express the fact that the definition of P, namely M, belongs to S. Now, Avicenna's claim is that if posting the definition of P as a middle term were enough, then we would already know the conclusion from the very beginning. In other words, when Def(P) is predicated of S - i.e. when the minor premise is true -, P would be immediately (literally, i.e. there would be no need of a mediating term) understood as belonging to S. But what is precisely at stake in the process of demonstrative knowledge (leaving aside the *a posteriori* use of demonstration as a tool for the organization of a structured body of knowledge) is that the conclusion is neither better known than nor as known as any of the premises.

We must be genuinely in doubt about whether S is P, if we are really looking for a demonstration that S is P. Consequently, if we already know facts that would make seeking whether S is P a purely cosmetic exercise, we are not really doing science. Having a clear knowledge that the definition of P applies to S (minor premise) is one such bit of information that would make the question whether S is P pleonastic.

If we know that a suitable definitional or descriptional characterization of the major term belongs to the minor, i.e. if we know the minor premise, we should not be in doubt about whether the major term belongs to the minor in the first place. But it is uncontroversial, according to Avicenna, that in a vast majority of cases, the fact that Def(P) applies to S (minor premise) is just as unclear to us as the fact that P belongs to S (conclusion), and therefore the minor premise itself needs to be established, before proving the conclusion. In particular, the minor premise itself will have to be established as the conclusion of a (chain of) syllogism(s) whose middle term(s) provide the

justification for the connection between Def(P) and S.

In most situations, the fact that the definition of P is predicated of S (minor premise) is just as unclear as the fact that P is predicated of S (conclusion), so even if we posit the former, it still won't be enough to prove that S is P, at least from an epistemic standpoint. So in fact, what is needed is often a chain of middle terms, and the definition of P alone is not enough to prove that S is P. If we already have adamantine knowledge of the minor premise, seeking that S is P would be pointless. It would be a bogus demonstration. The fact is that in most cases we do not know much about the minor premise, and we need to prove it. When we have it (not immediately, as if we posited the definition of P as the only middle term in the proof, but as a result of a sequence of sub-proofs) we can safely predicate P of S. To reach the right epistemic (and logical) status concerning the minor premise, we need other middle terms that provide the link between Def(P) and S. Those additional middle terms, according to Avicenna, are not definitions of the major.

Before concluding that S is P (i.e. that the expression signified by the defined P belongs to S) we need to conclude *via* additional steps that M, i.e. Def(P), belongs to S. The bottom line is that the claim that demonstrations with definitions as middle terms always supply the cause of the predicate's belonging to the subject is false, because we would not be able to demonstrate anything except when the minor premise is evident (namely Def(P)'s belonging to S), whereas P's belonging to S is still to be determined. And there do not seem to be many example of this type.

3. Taṣawwur and taṣdīq / Definition and description - Syllogisms

The model described by Avicenna relies on a classification of scientific inquiries centered around two irreducible types of questions: ifs and whats. Certain facts need to be established by means of

demonstrations (typically claims of the form 'S is P'). Certain other facts (typically relations between essences, but not only) are assumed as principles and are stated either by means of definitions or, more broadly, as descriptions within the framework of a particular domain of knowledge. The bridge between these two areas of epistemology is provided by a certain conception of the underlying logic. One domain is demonstrative knowledge, i.e. mediated knowledge of logically derived conclusions. It turns out that the items that are supposed to warrant the mediation (middle terms in the syllogistic formulation of proofs) are taken from the other domain, namely the domain of definition (or description), which gives us the set of assumptions or stipulations concerning the meanings of terms involved and the nature of things those terms signify. As noted above, ifs and whats, are irreducible questions. However, they are connected insofar as the mediated knowledge of ifs, which is proper knowledge only when we can answer to why-questions relative to those ifs, is warranted by entities (middle terms) which must be ultimately taken from the domain of whats (strictly speaking definitions, or often also descriptions, i.e. accounts that do not merely give the essential constitutives of the predicate term, but richer factual information about it).

The two domains of knowledge embodied by demonstrations and defintion ultimately rely on a distinction which came to be fundamental in Arabic logic (after Fārābī and Avicenna) between conception (*taṣawwur*) and assent (*taṣdīq*)–. The two operations, roughly, correspond to the representation of things and their discrimination from one another, and the acknowledgement of the truth or falsehood of a judgment, respectively. Conception and assent have linguistic counterparts: differentiating phrase (*qawl mufaṣṣil*) and syllogism (*qiyās*). *Taṣawwur* stands to *taṣdīq* in the

same way as *qawl mufaṣṣil* stands to *qiyās*. Just as there are various types of conception and assent, so there are different types of differentiating phrases and syllogisms. Different types of conceptions stand to different types of assent in the same way as different types of differentiating phrases stand to different types of syllogism.

Types of conceptions are divided according to whether they are carried out by means of (1) essential notions (*dhātīyāt*) or by means of (2) accidental notions (*ʿaraḍīyāt*). In each case, the set of notions used to represent a concept can be proper to what is being represented, like (1.1) 'mortal rational animal' or (2.1) 'two-footed walking animal' to 'human', or common to what is being represented and to some other notion, like (1.2) 'animal' or (2.2) 'walking', which is common to 'human' and other animals. Thus, the resulting discrimination is such that (1.1) it singles out something against everything else by means of essential attributes (1.2) it singles out something against some other things but not against all other things by means of essential attributes, (2.1) it singles out something against everything else by means of accidental attributes, and finally (2.2) it singles out something against some other things but not against all other things by means of accidental attributes–.

The corresponding types of differentiating phrases will be (1.1) complete definition (*ḥadd tāmm*), (1.2) incomplete definition (*ḥadd nāqiṣ*), (2.1) complete description (*rasm tāmm*), and (2.2) incomplete description (*rasm nāqiṣ*)–. Types of assent, on the other hand, are classified according to their epistemic status as (1) certain (*yaqīnī*), quasi-certain (*shabīh bi-l-yaqīnī*), persuasive and presumptive (*iqnāʿī ẓannī*). The first class is such if *p* is assented to, then the belief

that *p* is accompanied by a belief that *p* cannot be otherwise; the second class is such that if *p* is assented to, then the belief that *p* is not accompanied by the belief that *p* cannot be otherwise or if it is accompanied by such a belief, the latter is defeasible; the third class is such that if *p* is assented to, then the belief that *p* is accompanied by a belief that the contradictory of *p* is possible. The corresponding types of syllogisms will be (1) demonstrative syllogism (*qiyās burhānī*), (2) dialectical syllogism (*qiyās jadalī*), and (3) rhetorical (*qiyās khaṭābī*)–. The operations that correspond to definition and demonstration ultimately go back to these two notions–.

4. Reconciliation

On this epistemological model, the domains of definition and demonstration are reconciled by the properties of middle terms that play the key role in demonstrative syllogisms. Despite the irreducible character of definition and demonstration on the one hand, and of conceptualization and assent, on the other, in the model of demonstrative knowledge discussed here, there is a way in which the two pairs are connected, ideally by rearranging the terms occurring in the logical structure of syllogisms and in the formulation of definitions. If we use a definition (or a description) of P as a middle term in a demonstrative syllogism, and we prove (possibly through additional steps involving further middle terms) that P belongs to S, then we have a demonstration that S is P (the cause will be synthetically expressed by the definition/description plus the additional middle terms). On the other hand, if we take the middle term expressing the cause of S's being P, and arrange it in a suitable way in a phrase that gives an account of P (definitional or descriptional), then what we get is a definition (or a description) of P. In Aristotle, this model is suggested and illustrated by way of examples in B2 (eclipse, consonance) and then again in B8

(eclipse thunder). Avicenna follows the same model, but with the support of ancient commentators (especially Philoponus) puts forward a more systematic characterization of the relation between the terms involved in a demonstration and the connection with the domain of definition.

Consider the following two examples–:

S = moon, P = eclipse (of the moon), Y = disappearance of light (from the moon), Z = interposition of the earth (between the moon and the sun)

(1) (1.1) Z belongs to S
(1.2) Y belongs to Z
(1.3) Therefore Y belongs to S

(2) [(2.1) Y belongs to S]
(2.2) P belongs to Y
(2.3) Therefore P belongs to S

Four terms and two syllogisms are involved in Avicenna's reelaboration of the materials that are to be found in *An. Post.* B8. We want to prove that S is P, namely that a certain attribute belongs *per se* to S by providing the cause of its belonging to S; and in order to do this, according to Aristotle, we should ideally look at the definition of P and use it as a middle term. According to Avicenna, the path that leads to that conclusion has two steps. The middle term M is in fact split into two (I shall call them Y and Z, for the sake of clarity). One of them (Y, i.e. the effect, which is also the terms that gives us a grasp of what the thing is) occurs in both syllogisms, while the other (Z, i.e. the cause) occurs only in the first syllogism. The fact that S is P is established as the conclusion of the second syllogism.

Both middle terms, Y and Z, occur in the definition of P, which is obtained by concatenating them in a canonical form whereby the effect/account stands in the place commonly occupied in a definition by the genus, and the cause stands in the place commonly occupied in a definition by the

differentia. Thus, it holds in general that

P $=_{df}$ (Y | because of Z).

In the above example, this yields in turn

Eclipse (of the moon) $=_{df}$ Disappearance of light (from the moon) | due to the interposition of the earth (between the moon and the sun).

S' = cloud, P' = thunder, Y' = noise (in the cloud), Z' = quenching of fire

(3) (3.1) Z' belongs to S'
(3.2) Y' belongs to Z'
(3.3) Therefore Y' belongs to S'

(4) [(4.1) Y' belongs to S']
(4.2) P' belongs to Y'
(4.3) Therefore P belongs to S'

P' $=_{df}$ (Y' | because of Z')

Thunder (in the cloud) $=_{df}$ Noise (in the cloud) | due to the quenching of fire

In this context, Avicenna refers to the terms as follows. P is the major term of the second syllogism in the demonstration, i.e. the major term that we ultimately want to prove of S. P is also the *definiendum* whose characterization (i.e. the *definiens* of which) we are going to make use of in order to prove that P belongs to S. The corresponding *definiens* has two parts, expressing an effect and a cause, respectively. Y is the effect (the 'perfection of the definition'-) and plays the role of genus in the definition of P. It is also called 'conclusion of the demonstration' because it is the major term in the conclusion of the first syllogism. Z is the cause, and plays the role of differentia in the definition of P. It is also called 'principle of the demonstration', because it is the middle term in the first syllogism.

What needs to be demonstrated in the end is that S is P. To do this, we make use of an account of P (Y), which is proved of S by mediating it with Z, i.e. the cause of S's being Y. Then, since we can predicate P of Y because Y is a account of P (definitional or descriptional, albeit still partial), we can use the first conclusion (S is Y) to prove the second conclusion, which is what we were aiming at from the very beginning, namely that S is P. Thus, P is proved to belong to S by means of a complex middle term in two steps. The complex middle term provides an account Y of what P is, together with the cause Z of Y's belonging to S (the minor premise). In the first syllogism, the cause Z justifies the claim that a certain account of P, namely Y, attaches to S, which is the minor premise of the second syllogism, whereby we prove that the thing of which Y is an account, namely P, belongs in turn to S.

We therefore obtain both a characterization of the predicate P and a cause of its being predicated of the minor term. Definitional features in the above examples (expressed by Y) and causal justifications (expressed by Z) turn out to play a role in the proof that P is S (second syllogism)–. If Z is quenching of fire in the clouds, desire for revenge, interposition of the earth, Y is noise in the clouds, boiling of the heart's blood, disappearance of light, respectively, then we might say that Y distinguishes P from other phenomena (eclipses, thunders, and anger from other things) and Z provides the cause of Y's being predicated of that of which it is an attribute *per se* (the moon, clouds or the heart).

Thus, starting with a classification of scientific inquiries Avicenna offers an articulate account of various types of questions and of their relationships. If-questions and what-questions turn out to

be particularly relevant, since they are the typological questions to which all inquiries ultimately reduce. What-questions, in the case of middle terms, are related to why-questions, because when we look for the cause of the conclusion of a given demonstrative syllogism, we are looking for what the middle term is. Middle terms and definitions are related in demonstrative syllogisms, but in the end they answer to different needs and are functional in different epistemological processes. The distinction is grounded in the characterization of knowledge as conception (*taṣawwur*) and assent (*taṣdīq*). As Avicenna quite nicely puts it in *Burhan* I,1, knowledge follows two parallel paths, the one which obtains by means of conception has a logical counterpart in definition (or description according the whether the account of something is given in terms of essential or accidental notions), while the one which obtains by means of granting assent has a logical counterpart in syllogisms (or rather statements that occur as conclusions of syllogisms). The trajectory starting in *Burhān* IV,1 ends in IV,4 with an account of the Aristotelian claim that there is a sense in which demonstration and definition differ only with respect to the arrangement of terms. At the end of the discussion we get an attempt to solve some problems that are left open in B8.

The discussion of B10 where Aristotle recapitulates the types of definitions is matched by Avicenna with his own systematic account, which should be now looked at in the light of our previous characterization of what-questions. We may have the following types of definition: 1. definitions referring to the meaning of a name without any commitment to the existence of what is signified by that name (e.g. 'equilateral triangle' at the beginning of Euclid (proposition I). We introduced this type above, while discussing what-questions concerning the meaning of the name.

When the appropriate corresponding if-questions have been answered and we know that something is the case then we seek 2. definitions referring to the essence, three sub-types: 2.1 conclusion of a demonstration (= Y), 2.2 principle of a demonstration (= Z), 2.3 perfect definition (= Y | Z).

This model of definition applies typically to the case of attributes *per se*. Finally, when we are dealing with items in the domain (genus) of a science, another kind of definition is at stake, which does not refer to a cause other than the thing itself which is being defined (because there is none, or because the cause is the thing itself: 3. definition of things that either have no causes, or whose causes are not apart from their essence (it is the case with notions like point or unit). In a concise presentation of a demonstrative proof one might be tempted to compress the chain that connects an attribute *per se* to its subject by means of an abbreviated formulation whereby M is the definition of P. The question that remains open is whether this idealization is compatible with Avicenna's awareness of the complexities involved in the relation between why-questions and what-questions (explanatory middle term and definition/description). Avicenna seems to be willing to claim that there is much more to it than meets the eye. A way out would be to broaden Aristotle's claim that definition alone should be used as a middle term in demonstrative proofs and make use of descriptions along with definitions. If Y and Z (account of P and cause of its applying to the subject) range over a broader set of entities and phenomena, then the cost of rejecting the *littera* of Aristotle's text (with its excessively demanding requirements) might well be worth what we get in return, namely a richer theory with more explanatory power and a more flexible conceptual vocabulary.

The Divine Syllogistic of Avicenna

Philosophers in Muslim societies received the logic of the Greeks. However, they did not receive it passively. They rejected some doctrines and developed, if not invented, others. They put the logical theory to new uses.

These trends can be seen above all in the work of Avicenna (Ibn Sīnā). His philosophical corpus became the base for most later Islamic logicians and philosophers. Many agreed with him; even those who did not were often reacting to his doctrines. Logic textbooks such as the one by al-Kātibī used his doctrines and were taught routinely at the *madrasa*, the mosque schools.[1]

Starting from the texts of Aristotle with its attendant commentaries, Avicenna developed some apparently original logical doctrines centering around truth conditions for propositions. These in turn promoted changes in the formal logic: notably in the squares of opposition, in the conversion rules for premises in syllogisms, in his distinction of logical from physical modality, and in proofs for certain syllogisms. These doctrines have strong correlations with Avicenna's metaphysical insights: of the distinctions between essence and existence and between necessary being and possible being. Some of the logical features help us to understand his metaphysical doctrines; some of the metaphysical doctrines help to understand the logical theory. It is hard to determine what influenced what: the logic the metaphysics, or the metaphysics, his divine science (Ilāhiyyāt), the logic, the syllogistic giving rise to demonstrative understanding. (I prefer to think of his having a single, organic system.) To emphasize the connection I have chosen the title: The Divine Syllogistic.

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[1] Tony Street, "Logic," Cambridge Companion, pp. 252; 261.

Studies on Avicenna, especially in the West, concentrated at first on his mystical treatises, in the "Orientalism" of those like Henri Corbin, and later on his metaphysics of essence and existence. However, if we look at the writings of Avicenna, we find that two other areas consume far more of the pages of his writings (still extant): above all logic and then medical and biological subjects (among which I include his treatises on the soul). While a page count may seem a crude method for measuring importance, it does have some objectivity. Moreover it suggests that the scholarly interest in Avicenna's thought has taken its focus more from our contemporary concerns rather from the structure of his philosophical system. Perhaps we should take Avicenna's references to his logical works in his metaphysical discussions seriously.

Aside from pursuing the suggestion, I put aside discussing this issue here. I am going to discuss how the details of Avicenna's logical theory affect his metaphysical doctrines by focusing on how Avicenna's metaphysical theory of necessary and possible being interacts with his logical theory of modality. I do not have a reductive approach either whereby the logical theory prompted Avicenna to have a view of a necessary being actualizing possible beings or whereby this metaphysical theory prompted Avicenna to depart from Aristotle's theory of modality. Rather, I am inclined to an organic, dialectical approach, where Avicenna develops his system as a whole through working out the interrelations between its parts. Here though I begin on the logical side, as Avicenna himself advises.

One problem with many recent studies on Avicenna's logic concerns the sources used: Street, Lagerlund, Ahmed and Thom do not use Al-Qīyās nor the rest of the Šhifā much at all

but concentrate on Avicenna's more elementary summaries like Al-Ishārāt and Al-Najāt.[2] Lagerlund for instance finds Avicenna's account of conversion incomprehensible but uses only those summary texts.[3] I do not wish to harp on this, but this has importance. It is as if we assessed the philosophy of Averroes only via his minor commentaries. In a way this approach amounts, unintentionally, I am sure, to a neo-Orientalism: we get a picture of a silly, befuddled Avicenna, which he might not deserve. I intend to show that, on the contrary, Avicenna offers quite an interesting view of conversion and the mixed modal syllogisms.

The Befuddled Philosopher?

> Protect this truth from the ignorant, the vulgar, those who are not endowed with the sharpness of mind, those who lend an ear to the crowds, those who have gone astray from philosophy and have fallen behind.[4]

Avicenna has the reputation of being "The Self-Taught Philosopher"—as he himself announces in his autobiography.[5] He boasts of having mastered Aristotle's corpus in his teens and then striking out on his own. Avicenna considered himself to have few equals. He thought few worthy to share his thought and shared his writings stingily.

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[2] Henrik Lagerlund, "Avicenna and Ṭusī on Modal Logic," in History and Philosophy of Logic, Vol. 30.3 (2009): 227-239, pp. 230-1; see n. 12 on my 1992 article, and likewise Thom, Medieval Modal Systems, as they both state, use only these. Asad Ahmed, "Avicenna's Reception of Aristotle's Modal Syllogistic," in Before and After Avicenna, ed. D. Riesman Brill Leiden 2003 3-24 p. 3 n. 3, and Tony Street, mostly use Al-Najāt and Al-Ishārāt, with a little Al-Qīyās. Street does mention Al-Qīyās sometimes, e.g., in "Logic," in Cambridge Companion 257-8. He then, "Suhrawardī on Modal Syllogisms,"163-75, in Islamic Thought through the Middle Ages ed. Anna Akasoy and Wim Raven Brill Leiden 2008 p. 170, speaks of "'my own doomed attempt at a semantics for Avicenna's logic" [at least before his article in The Unity of Science in the Islamic Tradition 2008]–doomed on account of not having a wide enough view of Avicenna's doctrines, including ascribing to Avicenna a principle of plenitude.

[3] Henrik Lagerlund, "Avicenna and Ṭusī on Modal Logic," p. 238: "Avicenna's discussion of the conversion rules is very disappointing and he clearly struggles to make sense of what Aristotle is claiming to be valid. In the end, Avicenna is unable to validate any conversion rule for modal sentences. Ṭusī is much clearer." (My view is that in his commentary on the Ishārāt Ṭusī often gets his objections by consulting Avicenna's doctrines from the Šhifā.)

[4] Al-Ishārāt IV 904-6 (Cairo 1958), trans Shams Inati, Ibn Sīnā Remarks and Admonitions Part One: Logic Toronto, Pontifical Institute, 1984, p. 3. Cf. Manṭiq al-Mashriqiyyin 4. (Cairo Salafiyya Press 1328 AH)

[5] Indeed Ibn Tufayl wrote a romance Scaliger published Ḥayy ibn Yaqẓān (Philosophus Autodidactus), a romance of his life, based on his life, which Scaliger later popularized in the West.

This elitist, esoteric posturing had a long history before Avicenna. In philosophy, it starts with Parmenides and Heraclitus and continues on with the Platonic tradition: philosophy for the worthy few; propaganda for the vulgar masses. Avicenna believed Aristotle to have held the same view, due to a letter ascribed to Aristotle and written to Alexander. According to it, Aristotle was deliberately obscure in order to ward off the common people.[6] Likewise, al-Fārābī, "The Second Teacher", whom Avicenna admired greatly, says:

> Our style used an obscure way of expression for three reasons: First, to test the nature of the student in order to find out whether he is suitable to be educated and not; second, to avoid lavishing philosophy on all people but only on those who were worthy of it; and third, to train the mind through the exertion of research.[7]

Religious traditions in Islam also had the custom of withholding knowledge from the *hoi polloi* and reserving it for the select few.[8] Avicenna himself says that true prophets follow the method of logic and philosophy but hide their actions from the common people.[9]

So Avicenna thinks that Aristotle is hiding his own views. Thus he says about modal syllogisms (like INAANA, discussed below) that

> Know that most of what is contained in the doctrine of the First (Teacher) of the case of the mixed [modal syllogisms] are tests and are not real verdicts. The reality of this will be explained to you…[10]

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[6] Gellius, Noctes Atticae 20,5,11-2, in Aristoteles, Privatorum Scriptorum Fragmenta, ed. M. Plezia (Leipsig, 1977), 28; cited in Gutas, Avicenna and the Aristotelian Tradition p. 226. Cf. Simplicius, in Cat. 7,6-9.

[7] Mabādi' Al-Falasafah Al-Qadīma (Cairo, 1910), p. 14, trans. Gutas, Avicenna and the Aristotelian Tradition, p. 227.

[8] Gutas, Avicenna and the Aristotelian Tradition, p. 231

[9] Al-Ilāhiyyāt 41,5-10.

[10] Al- Qīyās 204,10-2. Cf. Al-'Ibāra 121,1ff.; Al-Madkhal 9,8-11.

He then likely thought that his own task was to uncover the hidden doctrines of Aristotle from his "pointers" and "remarks".[11]

Apart from these elitist motives, Avicenna's way of writing does not help the quality of the text that we have. Generally he would write extremely quickly. His own account has him writing fifty pages per day of the metaphysics and physics of Aš-Šhifā.[12] After writing something, he would give the copy to whom it was promised, or put it away for showing to the worthy few. Often, due to his frequent moves and the religious and political turmoil, his writings were lost or damaged.[13] Consequently, we have the situation that Avicenna probably proofread little, and what copies there were were made haphazardly under hasty circumstances.

So how to interpret the philosophy of Avicenna? The confusion and obscurity of his texts suggest the easy way of saying that mostly he offers *ad hoc* comments on particular texts without having a systematic theory. To be sure, some of his comments have brilliance but then others do not. His claims about his own hidden doctrines can be explained by tradition and by his arrogance and conceit. Moreover, as is commonly remarked, the Islamic philosophers were working with translations of the Greek sources, and accepted some neo-Platonist works like the Liber de Mundo of Proclus as genuine works of Aristotle. Certainly it is easy to see Avicenna slipping into a philosophical "Dream": just as Borges says Averroes did when commenting upon the Poetics of Aristo-

[11] I suppose, in this sense, I can agree with Lagerlund, "Avicenna and Ṭusī on Modal Logic", 239, that Avicenna is "primarily an interpreter of Aristotle". But hardly in the style of a scholar or paraphrase like Averroes. See Bäck, "Avicenna The Commentator."

[12] The Life of Ibn Sīnā, 58,2-8.

[13] Al-Jūzānī, "Introduction" to Aš-Šhifā, §2, trans. Gutas, Avicenna and the Aristotelian Tradition, p. 40: "I have heard, however, that these were widely dispersed in that people who owned a copy of them withheld them [from others]; as for him, it was not his habit to save a copy for himself, just as it was not his habit to make a copy from his archetype or transcribe [an archetype]from his rough draft: he would only either dictate or himself write the manuscript and give it to the person who had commissioned it from him. Moreover, he suffered from successive misfortunes, and disasters destroyed his books."

tle while knowing nothing of Greek theater.[14] In fact, there Avicenna did even worse: he tried in his own commentary on the Poetics to reconstruct what Greek tragedies were like from the Arabic translation of Aristotle's text with its attendant *marginalia*. This amounts to a farce and a nightmare. Averroes, who did not discuss the Greek plays but instead tried to find analogues in Arabic poetry, comes off much better.

On the other hand, perhaps Avicenna does have a general theory presented obscurely—with the obscurity partly being intentional and partly resulting from the haphazard composition and transmission of his writings. On this line, take Avicenna much like a Leibniz with a strong esoteric streak. Avicenna will give "Pointers" to and "Remarks" about his theory (as indeed is the title of one of his later works), but no more.

Deciding upon this issue becomes crucial in giving even a general outline of Avicenna's thought. Does he accept the principle of plenitude, according to which everything possible comes to pass at some time? Then it would be necessary for every possible being, every contingent being, to exist. Many have taken Avicenna to have this position.[15] But then the logical distinction between an absolutely true universal proposition, holding at all times, and its true modal counterpart would disappear—although Avicenna himself seems to maintain their difference.[16] Moreover, Avicenna's main metaphysical distinction, between necessary being and possible being, would then become pointless and rather silly. For a possible being would exist just as necessarily as the necessary being; it's just that a possible being exists only at some times, and perhaps not at a definite

[14] Did Jorge Luis Borges, "La Busca de Averroes," El-Aleph, 1949 ever read Averroes' commentary on the Poetics—or was he in his own dream?

[15] Street 2002 and Thom 2003 claim that Avicenna accepts the principle of plenitude (Street then changes his mind; see n. 2). I don't: see Bäck, 1992 and below.

[16] Henrik Lagerlund, "Avicenna and Ṭusī on Modal Logic," p. 232, admits this. There is also the complication that Avicenna holds that the necessary being has no knowledge of the singularities of individual terrestrial substances.

time, whereas a necessary being exists at all times. Can the necessary being still cause a possible being to exist on this interpretation? Perhaps. But still, it seems to me, the necessary and the possible become co-dependent and correlative: for, if a truly possible being did not exist at some time, neither would the necessary being; perhaps only a conceptual priority remains.[17] Despite what he says, embracing contingency and rejecting Platonism, Avicenna would end up with a version of Plotinus.

So, to repeat, how systematic and coherent should we take the thought of Avicenna? Should we try to follow his hints and fill in the gaps? To take some further instances from his logic, which I shall be discussing below: in his syllogistic Avicenna rejects the conversion of universal negative propositions. He gives some counterexamples rather obscurely. In doing so, he mentions the truth conditions for denials that he gives precisely in Al-Ibāra.[18] But he does not use them much in discussing conversion. Is he then leaving it up to the reader to make the connection? Again, he has a complex account of how to fix the time and reference of a proposition but does not explain how it fits with his theory of essence and existence. Again he refers to his logic when discussing the metaphysics of the necessary being. He criticizes those who do not apply the logical theory—but then leaves it up to the reader to do so. Should we make these connections for him to understand better his conception of the necessary being and its relationship to possible beings?

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[17] Cf. Marmura, "The Metaphysics of Efficient Causation in Avicenna," 172-87 in Islamic Philosophy and Theology, ed. M Marmura SUNY Albany 1984, p. 181: the efficient cause and effect are co-existent, strictly speaking.

[18] Al-Qīyās 133,13-4 "As for the denial, it might be true of something existent and of something non-existent. So it might be true of them both at every time." At 135,4-5 he does mention and proceeds to use those truth conditions in discussing a particular syllogism.

Think how befuddled Avicenna would have to be if we do not try to connect up his doctrines. He insists upon radical contingency in his logic but then forgets about it in his metaphysics. He gives precise truth conditions with an explicit existential import assumption in discussing propositions and then ignores them in his syllogistic. He distinguishes logical from ontological modality and fails to discuss the distinction in discussing necessary and possible being.

Accordingly I am inclined to use as my default option the assumption that Avicenna has a general, consistent theory. First, in general from the principle of charity, we have no need to find a theory confused *a priori*. Rather we should work it out and make such a conclusion from the details. Second, Avicenna has the habit of cross-referencing his works while omitting to cite up the particular relevant doctrines. This habit suggests that he has a more or less systematic approach but leaves it up to the competent readers, the worthy few, to link up the passages. As usual, the plausibility of my approach lies in the details.

The Structure of the Proposition

Arabic has no explicit word for the copula, the 'is' of predication. It appears in both verbal sentences, with an explicit verb doing more than connecting subject and predicate, and nominal sentences, without any verb.[19] Too, Arabic has no native structure where there is a separate expression for each element of 'S is P'. However, in Aristotle's logic and indeed in his metaphysics of being, 'is' as a separate element plays a large part.[20] In seeking to render Aristotelian philosophy into Arabic, the translators had to fix on some

[19] Wright, A Grammar of the Arabic Language, Vol. II §§124-5. Cf. AI-Fārābī's Introductory Sections on Logic, ed. & trans. D M Dunlop, Islamic Quarterly, Vol. 2 (1955), 272,17-273, trans. p. 280, on the need to insert '*huwa*' in Arabic nominal sentences

[20] See Bäck, Aristotle's Theory of Predication,

word corresponding to 'is'. For the nominal sentence, which they took as the preferred form, so as to get a term logic, with the terms 'S' and 'P' related by 'is', they settled on *mawjūd* ('existent') for 'is'.[21] All this was not elegant or even colloquial Arabic. Yet, given their philosophical goal of expressing truths in whichever linguistic conventions displayed them accurately, this was hardly an issue for them.

Thus the Islamic philosophers self-consciously adopted a structure with '*mawjūd*', a participle of '*wajada*', which means 'to be present' or 'to exist'.[22] To say that S is or exists (ΕΣΤΙΝ S) is rendered either by the verbal '*kāna*' construction, namely as '*kāna al*-S *mawjūd*' or nominally by '*al*-S *mawjūd*'. The usual predicate in 'S is P' is then put into an accusative of respect, which specifies the existence further so as to get the form, 'S (is) existent (as) a P'.

Hence the simple affirmation, 'S is P', came to have the usual parsing, 'S is existent as a P'. For instance, already among the philosophers of the Kalām, it was held that a statement of form 'S is' (*al-S kāna*) makes a claim of existence. Further in a statement of form 'S is P' (in every case or with only some types of verbal complements), 'P' must be taken as an accusative specifying the state: 'S is existent as a P'. For example,

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[21] Less frequently with the verbal sentence using *kāna*. Cf. Al-Fārābī's Introductory Sections on Logic ed. & trans. D M Dunlop, Islamic Quarterly, Vol. 2 (1955), 272,2-6, trans. p. 280: "These and what stands in their place are called existential vocables since They are used to signify the existence of a thing in relation to another and to connect the predicate with the subject of predication, as when we say Zaid exists (*ujadu*) going away', when he is (*kāna*) going away. These existential vocables are employed as connectives when the predicate and the subject of predication are both names we wish to signify the three tensest as when we say Zaid was (*kāna*) eloquent, Zaid will be eloquent', Zaid is eloquence."

[22] Cf. F. W. Zimmermann, Al-Farabi's Commentary and Short Treatise on Aristotle's De Interpretatione, pp. xliv-v; E. M. Goichon, La distinction de l'essence et de l'existence d'après Avicenne, pp. 14-5. In effect the '*mawjūd*' construction captures the sense of 'ΥΠΑΡΧΕΙ', which I shall discuss below.

> 'Zayd is knowing' is to be read as "Zayd *is*…and that his *is*, insofar as it is stated in this proposition, is a being knowing. That he have an attribute is that he be qualified in his being by an attribute…i.e., that he be in some state.[23]

Similarly, Avicenna states that his basic principle is: "the reality of the affirmation is the judgment of the presence (*wujūd*) of one thing to another."[24] Thus far, Avicenna might appear to be following Ammonius, al-Fārābī and On Interpretation, as commonly interpreted, where 'is' serves only to connect subject and predicate. So too Avicenna insists that a statement concerns the relation of one thought to another.[25] However, unlike al-Fārābī, Avicenna, following some combination of the Kalām, Philoponus, and his own genius, makes the simple assertion also state existence explicitly; he analyzes 'S is P' into 'S is existent, and P is an attribute of S'.[26] Then the simple denial, 'S is not P', Avicenna says, consistently, when taken as 'it is not the case that S is P', is true either if S does not exist or if P is not predicated of S.

Avicenna accepts Aristotle's claim that the universal affirmative (A) and particular negative (O) statements are contradictories, as are the universal particular (I) and the universal negative (E). To get this to work with his truth conditions, he has to take the particular denial, which he admits is the contradictory of the universal affirmative, in an unusual way (which in fact might be Aristotle's own way![27]): as 'it is not the case that every S is P'. This, on his theory, is not equivalent to 'some S is not P' in the sense that

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[23] Trans. and cited by Richard M. Frank, Beings and Their Attributes, p. 23; cf. p. 21.

[24] Avicenna, Al-'Ibāra 82,15ff; Kitāb al-Najāt 67,11-8; On Interpretation 19b5. Cf. Al-Farabi's Commentary 103,3-23 [trans. Zimmermann, pp. 98-9].

[25] Al-'Ibāra 42,15-6.

[26] Al-'Ibāra 77,8ff.

[27] Michael Wedin, "Aristotle on the Existential Import of Singular Sentences," p. 180, agrees that Aristotle holds that 'S is P' has the structure 'S exists and that S is P'. In "Negation and Quantification in Aristotle," p. 143, he has disjunctive truth conditions for the simple negative statements. Cf. Walter Cavini, "La negazione di frase nella logica Greca," pp. 24-5; Terence Parsons, "The Traditional Square of Opposition."

there exists something that is both S and not P. He does not give the truth conditions for the O proposition explicitly but does do so for the singular denial, 'Zayd is not just', which he says is true if Zayd does not exist or being just not predicated of Zayd (since Zayd is in some state other than justice). So then likewise 'some S is not P' would be true if either there does not exist an S or P is not predicated of S.

At times it seems that Avicenna does not have a very strong existence condition. Thus, he says, every subject of a proposition, even 'griffin', is existent either in individuals or in the intellect.[28] Still, although Avicenna does admit contexts where existence *in intellectu* suffices, like Aristotle he generally demands existence *in re*.[29] Otherwise his existence condition has no point, for all statements will satisfy it. (For a contingent being to get that requires an external cause; existence *in intellectu* does not, aside from the existence and activity of that intellect.)

Relative to the mainstream Aristotelian tradition, Avicenna has a non-standard conception of the proposition. I summarize some of its relevant features here.

First, as discussed, he makes affirmative propositions assert existence explicitly, while also allowing for existence to be asserted in different ways. So he says about the categorical affirmative:

> The meaning of this is that thing which we suppose in the mind to be a human being, be that in concrete existence or not, we must suppose to be an animal. And we judge it to be an animal, without adding "when" or "in what state".[30]

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[28] Al-'Ibāra 82,15ff. Cf. Al-Maqūlāt 22,9-10.

[29] Miklos Maroth, Ibn Sina und die Peripatetische "Auusagenlogik", pp. 39; 42, notes that like the Stoics, Avicenna lets conditionals apply to non-existents as well as to existents, in contrast to the categoricals.

[30] Al-Ishārāt 226, trans. Shams Inati, Ibn Sīnā Remarks and Admonitions Part One: Logic Toronto, Pontifical Institute, 1984, pp. 78-9. Street, 2002, p. 132, however claims that for Avicenna every proposition is either temporalized or modalized.

He then is allowing for the existence to be *in re* or in some other way, in the mind.

He makes this clear when he discusses the example, "Homer is a poet'. In commenting on On Interpretation 11, at first Avicenna follows al-Fārābī once again in explaining why 'Homer is' does not follow from 'Homer is a poet'. In 'Homer is a poet', the copula is predicated only incidentally, to signify the predication of 'poet' of Homer; 'is' is not predicated in its own right.[31] I.e., this sentence has a predication of being *per accidens*, and not the usual one of being *per se*. But then Avicenna insists upon an explicit existence condition:

> After all of this we have learned from them that 'thing' is not predicated of the non-existent.[32] We know that, when we say (that) Homer is a poet, it is not true in the sense that Homer is a thing characterized as being a poet, but rather that the phantasm of Homer is characterized as being a phantasm imagined of Homer, where it is true to connect to it the sense 'is a poet'. That is, he is an existent phantasm having the characteristic that, when the phantasm of past time is connected with it, and when the sense of poet is connected with it, it ['was a poet'] is true of him.[33]

Avicenna is requiring that Homer exist for 'Homer is a poet' to be true. After Homer's death, that statement still has an existing subject, but this time a phantasm, an actual concept in a presently existing mind.[34] But this does not suffice normally. Strictly speaking,

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[31] Al-'Ibāra 109,2-11. Cf. On Interpretation 21a25-8, and Al-Farabi's Commentary 160,23-7 [trans. Zimmermann, p. 155]. Also cf. Ammonius, in De Int. 186,15.

[32] In the philosophy of al-Fārābī , 'thing' was taken to be the most general feature of reality. See Kitāb al-Ḥurūf §104 128,6-7; §85, 114,2-3. Whether or not 'thing' and 'existent' have the same signification, and in which respects, was an important topic. Ghassan Finianos, De l'existence à la nécessaire existence chez Avicenne, pp. 60-1, claims that the Mu'tazilites apply 'thing' even to the non-existent. He says, pp. 63-71, that Avicenna argues against this view and distinguishes the thing from the existent. Cf. Al-Ilāhiyāt 31,2-4.

[33] Al-'Ibāra 109,12-110,1.

[34] Al-'Ibāra 109,12-110,1. Cf. Avicenna's discussion of the griffin, 110,2ff & 82,16-8; Kitāb al-Najāt 6,2-3. On the relation between phantasms and concepts, cf. Al-Nafs 32,7ff.; 147,1ff. In general, 110,7-14, phantasms are based on particular experience, whereas concepts are of universals. On predication of non-existent objects, cf. Ammonius, in De Int. 186,15.

'Homer is a poet' is false, since Homer does not exist *in re* once he has died. Still, he can be known, as Russell will say much later, by acquaintance, through a causal chain of naming and meaning. This connects the phantasms, the conceptions of him existing in minds presently existing *in re*, with his past existence. Then 'Homer is a poet' claims that Homer exists only *in intellectu*. Likewise, Avicenna claims, saying that the griffin exists in our imagination does not amount to the griffin's existing in reality.[35]

So Avicenna recognizes two sorts of existence: *in re* and *in intellectu*. (Given that minds are real things in the world, existing *in intellectu* can be seen as a special case of existing *in re*.) Normal contexts require existence *in re*. He has also a sort of "subsistence" tied to quiddities in themselves like horseness, as we shall see. This multiplicity makes it obscure how the existence condition for the truth of a proposition is to be satisfied. We shall see that his modal theory motivates him to insist upon this complexity nevertheless.

Second, the assertion of existence in a proposition makes a determination of the length of time involved. Here the relevant sort of existence is usually existing in actuality, *in re*. Like Aristotle, Avicenna takes a verb to signify time. Aristotle himself has remarks on how to understand a statement in the present tense. In science, he says, a statement of the form, 'every S is P', asserts that P is said of every instance of S at all times. [An. Po. I.4] He distinguishes such a universal statement from an essential statement, a statement holding *per se*. For instance, 'every swan is white' is true since all swans at all times are white, even though it is not true *per se* that every swan is white: for whiteness does not belong to the essence of swan but is a mere accident.[36] In the modal

[35] Al-'Ibāra 110,1-9.
[36] Alexander, in Top. 50,6-11. See n. 107.

syllogistic Aristotle admits also that a statement may be taken "as of now" (*ut nunc*), to hold just at the present moment.[37] For instance, 'every scribe is awake' can be true *ut nunc*, if it just so happens that at that instant every scribe is awake, even though taken absolutely it is false, as there are times when some scribes are sleeping and not awake.

Avicenna accepts both of these points. However he has a far more complicated account than Aristotle of how to determine the temporal duration of a statement. As in the Latin medieval doctrine of supposition, for Avicenna the sentential context, sometimes along with the intention of the speaker, determines the time duration intended. With 'the moon has eclipses', the statement does not signify the present time, when the moon is not eclipsed, or all times, but only those times when the moon is eclipsed. The statement, 'Socrates is kind', does not signify only those times when Socrates is performing kind acts one but all times when Socrates exists. Otherwise Socrates could be kind even though he regularly acts cruelly. So sometimes the subject term ('Socrates') for the most part sets the time duration for the predication to hold, while other times the predicate term ('eclipsed') does. As other factors are involved as well, particular cases and a full account become quite complicated.[38]

Third, the subject and predicate terms can be taken in various ways: in particular they may have a referential (*dhātiyya*) or an attributive (*waṣfiyya*) use.[39] This holds especially when the terms are paronymous, sc., derived from names of items in the accidental categories, like quality and relation, as 'scribe' comes from 'scribehood'[40] and 'slave' from 'slavery'. For instance, consider 'this scribe is P'. The subject term can refer to the

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[37] An. Pr. 34b7-18.

[38] Allan Bäck, "Avicenna on the Categorical Assertive."

[39] N. B.: this distinction differs from Keith Donnellan's distinction of referential and attributive uses of definite descriptions, as in both cases the subject has the predicate…at times.

[40] This comes from the Arabic translation of 'grammatical' and 'grammar' in Aristotle's Categories.

human being Zayd, say, in two ways: during the entire existence of Zayd or only during those times when Zayd is a scribe. In the first way, 'scribe' focuses on the *reference*, to the individual substance; in the second, it focuses on the *attribute* of being a scribe, which happens at times to belong to that substance.

This distinction has its antecedents. First, Aristotle himself offers a basis for this distinction of the referential and the attributive uses of paronymous terms in Metaphysics VII. He asks: does the white have an essence? He says that 'the white', namely 'what is white' (τοὶ λευκοφν), can be understood in two ways: as a mere thing having whiteness, as the mere paronym, or as the substance having whiteness, a complex of an individual substance with an accident. Again, in Topics I.5 etc. Aristotle uses *ousia* sometimes to mean 'substance' and sometimes 'essence'. This makes it possible to understand the ousia of a white thing to be, say, the substance swan and the quality whiteness.

Second, Alexander, commenting on Prior Analytics I.3, raises or cites an objection about the conversion of the necessary universal denial (NE).[41] He uses the example, 'it is necessary that everything grammatical [in the Arabic translation: every scribe] is a man'—the very example that Avicenna will bring up on the same point. Alexander claims that Theophrastus had discussed it, and solved it by distinguishing the simply and strictly necessary from the necessary with a determinant. He does not explain. Later on al-Fārābī discussed this issue and used the same example. He claimed similarly that the conversion holds only for the *per se* and not for *per accidens* necessary proposition. Avicenna critiques his analysis.[42] Avicenna seems to be working out the details of this dis-

[41] Alexander, in An. Pr., 36,25-30. Street, "Logic," p. 256, says that the attributive-referential distinction "unknown in the West", although he himself admits some foundation in Aristotle.

[42] Street, "Logic," in Cambridge Companion 257-8, claims that Avicenna is attacking al-Fārābī at Al-Qīyās 209-10 [210,12?]. (The text of al-Fārābī is not extant.) Averroes discusses the issue also. Frank

tinction as we shall see. Once again, Avicenna may be thinking here that he is working out the hidden doctrines of his Aristotelian predecessors.

Fourth, other factors in the proposition can set its temporal duration and the reference of its terms as well. Here the most important ones are adverbs: temporal ones like 'always' and 'at noon' and 'during her life' and modal ones like 'necessarily' and 'possibly'. For instance, Avicenna allows the future tense to change the reference from what exists now to what exists at a later time, as in 'there will be a sea battle tomorrow'.[43]

In scientific contexts, concentrating on observed phenomena, Avicenna says that the terms of the syllogisms must have existence *in re*.[44] Then a negative statement can no longer be true just because the subject term does not have existential import. With this assumption, Avicenna's square of opposition turns into the one of Ammonius and al-Fārābī (the one standardly given today in textbooks as Aristotelian). Moreover Avicenna says that in this syllogistic denials have the structure of metathetic propositions: 'S is not P' should be taken as the metathetic affirmative, 'S is not-P'.[45] Aristotle himself seems to have suggested this when he calls denials "privatives".[46] Given this existential import, denials no longer have disjunctive truth conditions, and E conversion obtains; given the metathetic construal of denials, E to O inference holds.

Griffel, Al-Ghazālī's Philosophical Theology Oxford 2009, p. 165, says that Avicenna's distinction of the referential and attributive uses comes from Sophistical Refutations 166a22-30, but this seems unlikely.

[43] Al-'Ibāra 72,9ff.

[44] Here we get something like the analysis that Street 2002 p,. 135 and Thom, "Avicenna," Medieval Modal Systems, p. 65, attribute to Avicenna: 'every j is b' is anything described as j at some time is at least once b. Thom, p. 67, goes further in saying that Avicenna treats assertorics "as equivalent to possibility propositions with ampliated subjects."

[45] Al-Qīyās 75,10-76,11, says that E to O conversion is allowed, again given existential import—and we get O conclusions. Street 2000 p. 46; 2002, p. 135, takes Avicenna always to require existential import. Thus an A propositions: subject must exist at some time; so too for E proposition [Al-Ishārāt 287]. However in discussing contradictories and the square of opposition (in 2000, p. 47) he uses Al-Ishārāt 317 but does not mention Al-'Ibāra or Al-Qīyās.

[46] Prior Analytics 39a13 etc.; Bäck, Aristotle's Theory of Predication, pp. 232-8.

On the purely logical account, without existential import for denials, some propositions will be true that ordinarily do not seem to be so. To take examples, inspired by Avicenna's claim that it is possible for a heptagonal house to exist *in re* even though there never was or will be one: 'some heptagonal house is not a house' is true, on account of there not existing any heptagonal houses. Once existential import is required for 'heptagonal house' and 'house', it becomes false.

Perhaps Avicenna came to this aspect theory of predication on account of noticing the incongruity of Aristotle's own theory and the commentaries of those like Ammonius and al-Fārābī, who follow the canons of Proclus. Aristotle himself does not endorse E to O inference in the square of opposition or use it in his syllogistic. In contrast, Ammonius does in his account of the square.[47] By making the existential import condition explicit and applying it to the syllogistic, Avicenna could make the theories of Aristotle and the later commentators consistent. On the other hand, perhaps his metaphysical insights led him to this result. For note that in these truth conditions we have already presupposed a distinction between essence and existence. The existence condition is added on to the predication relation of copulation between the terms.

Avicenna thus makes many distinctions about the proposition: two types of modality, two types of existence (as well as a "subsistence" of quiddities in themselves), different ways in which the subject term refers, different ways of setting the temporal duration of the proposition, a logic without and with existential import. He does not offer many details on how to connect all these up into a systematic theory. Mainly he says that

[47] Bäck, Aristotle's Theory of Predication, pp. 269-75.

we should distinguish a technical use of the proposition, where we consider what the sentence means, from an ordinary, common use of the proposition, where we consider what the speaker means and what current linguistic conventions obtain.[48] Still this does not offer a full account. This silence may encourage us to embrace the "befuddled" hypothesis. Still let us continue to be charitable and work out the details.

On account of some of these factors, Avicenna disagrees with some of Aristotle's doctrines about the syllogistic. I focus here on the conversion of propositions, both categorical and modal, and then turn to the modal syllogistic.

Conversion

In the syllogistic, mainly in proofs in the second and third figures, the subject and predicate terms need to be switched, so as to get to a first-figure syllogism. For instance, Aristotle presents the first form of the second figure (Cesare: II EAE): if no N is M, and every X is M, then no X is N. He proves it by converting the major premise, so as to get 'no M is N', and then using the second form of the first figure (Celarent I EAE). [An. Pr. 27a3-18] So the conversion of propositions has central importance in the syllogistic.

In respect of Avicenna's theory of the proposition, conversion has the general problem, how to fix the reference when the subject and predicate terms switch. For instance, if the proposition has its temporal duration determined on the side of the predicate, as with 'the moon is eclipsed', then what happens? Does the same term, now on the side of the subject, continue to determine its duration—or does that switch as well? Are there any general rules determining this? Likewise for other factors: if the existence con-

[48] Allan Bäck, "Avicenna on the *Usus Loquendi*."

dition concerns the subject term, does that condition change when the subject term switches?

Given all the different factors that Avicenna has identified as relevant for understanding categorical propositions, we can see why his discussions become quite complex. And they do. For instance, in discussing the E proposition he says:

> Or we say: there is nothing that is C unless it is also B. There is understood from this that everything that is characterized as being C in actuality however it be, always or not always, has B denied of it. And we do not know when, whether at all times when it is characterized as being B, or at all times [when] its existence is characterized is characterized, or not characterized, as being C, or at some times of its being C, or at a time other than the time of its being C. So, if what is characterized as being C has B denied of it, at every time of its being C, then it has B denied of it, and, if it is at part of that time, it has B denied of it, and, if it is at a time before or after that one, then it has B denied of it, and, if it is at every time of its existence, then it has B denied of it. Even if we say 'denied' or 'has been denied' or 'is denied', we imagine a time. So that belongs to the necessity of the expression. Rather we intend that everything characterized as being C has the denial of B true of it, we know not when.[49]

Here Avicenna first gives a truth condition for the E proposition in terms of the relation of subject and predicate, that everything that is C is not B. This looks very much like its current textbook symbolization in predicate logic: (x)(Cx ☮ ▭Bx). But then he adds on an existence condition, that some C exists at some time. Just what the stretch of time must be depends on various factors as he indicates. Some of the factors will complicate the conversion. He ends up saying that we might just take an E proposition absolutely, as holding "we know not when". Then the conversion is valid.

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[49] Al-Qīyās 81,6-15.

If we stick to propositions using terms from the category of substance and avoid paronyms and special temporal determinants—stick to what Avicenna calls "absolute" (his usual term for the categorical) propositions[50]—no unusual problems arise for such conversions. First, consider what conversions follow from the truth conditions given in the pure formal logic (in Al-Ibāra), where only affirmative propositions have existential import. The standard conversions, as stated by Aristotle, hold: The universal affirmative (A) proposition converts with the particular affirmative (I), which also converts with itself. Again, the universal negative (E) converts with itself (while the particular negative (O) does not). Given that E implies O, also E converts with O (although not always for the reasons given by Aristotle). Second, consider what conversions follow from those truth conditions plus the additional assumption of existential import for all terms, as Avicenna has said that scientific demonstrations allow only terms having instances existing *in re*. Once again, all these conversions follow.[51]

However, these standard conversions do not hold for premises used in syllogistic understood in all ways. Avicenna has extended discussions of particular examples. For instance, he says that in some cases 'no A is B' does not convert. He gives the example: given that no human being is laughing, it does not follow that nothing laughing is a human being.[52]

Offhand, by the standards of textbook syllogistics, this E conversion does seem to hold. Is then Avicenna befuddled on E conversion? He himself notes that E propositions are hard to state in Arabic. Has the translation befuddled him?

Avicenna himself does admit that E conversion holds here if 'no human being is laughing' is taken absolutely "in a common or specific mode".[53] Yet in some other mode, it does

[50] E.g., Al-Qīyās 125,8; Al-Ishārāt 263, trans. p. 91: in an absolute proposition: the judgement is given "without mention of its necessity, duration, or anything else concerning its being in time, or in accordance with possibility."

[51] Still, even here Avicenna can criticize Aristotle's proofs, as they disagree with what Avicenna takes the forms of the propositions to be.

[52] Al-Ishārāt 322; trans. Shams Inati, Ibn Sīnā Remarks and Admonitions Part One: Logic Toronto, Pontifical Institute, 1984, p. 113-4.

[53] Al-Ishārāt 322; trans. p. 114.

not hold. Here, in the Ishārāt, he does not explain himself much but at best is offering his "pointers".

Avicenna is likely reacting to the Greek commentators. As noted above, Alexander reported Theophrastus making some such distinction: the E conversion holds absolutely but not "with a determinant"; al-Fārābī took it to hold *per se* but not *per accidens*. So try this reading of the E proposition, with existential import for the terms: there is a time, let us suppose, as Aristotle often does when taking propositions *ut nunc*, when no man is laughing. Yet it does not follow from that that there is a time when no laughing thing is a man. Hence the conversion of E propositions cannot be said to hold always, without some temporal restriction. This conclusion does not look befuddled.

Note that such counterexamples cannot be constructed with substantial terms, as in 'no man is a stone': suppose that there is a time when no man is a stone. Still there is never a time when it is not the case when no stone is a man. So the counterexamples to E conversion need to have at least one accidental paronymous term, like 'laughing'. Moreover, that term has to be taken attributively and not referentially, so as to limit its reference to those times when something is actually laughing. If it is taken referentially instead, then the inference holds. Then 'laughing' refers to those things that sometimes laugh, during their entire existence. Now such laughing things are the rational substances, all the human beings let's suppose.[54] Then the E conversion follows.

Fixing the reference of the terms becomes a problem in conversion especially when the subject terms derive from the accidental categories and can be taken referential-

[54] There arises also the problem whether all human beings laugh; in the Aristotelian tradition it is supposed that all human beings can laugh: risibility is a *proprium* of the human species. So at least if we extend the reference to what all human beings can do, we can suppose that 'laughing' refers to all human beings.

ly or attributively. This problem does not arise for terms deriving from the category of substance. A substantial term used attributively will hold of the substance being referred to as long as that substance exists, since once it loses that substantial attribute it ceases to exist. Here the attributive use amounts to the referential use. For instance, with 'some goat is an animal', 'goat' refers to a certain hircine substance so long as it exists—or, as Avicenna puts it, so long as its essence is existent. (The essence being used is the one had by the substance of the subject.) The same holds for 'animal'. The switch of subject and predicate here occasions no problems of reference. Hence: every goat is an animal, and so some animal is a goat; no goat is a rock, and so no rock is a goat.

However, a paronymous accidental subject term generates difficulties.[55] Consider 'some slave is free'. This is false when 'the slave' refers, attributively, to things while they are enslaved. But it may be true referentially, where 'slave' refers to those human beings who are presently slaves, given that some of those human beings are not slaves their entire lives. In either case, the predication still holds "as long as the essence is existent". Referentially the essence used here is the one had by the substance of the subject; attributively the essence used is not the one had by the substance of the subject, the individual human being, but one had by an accident of that substance, being enslaved. So referentially the essence involved is that of the human substance; attributively it is slavery. Likewise, in 'something laughing is P', 'laughing' taken referentially refers to sub-

[55] The proper or *per se* accidents—the *differentiae* and *propria*—do not seem to have this difficulty. Aristotle has the position in the Categories that these are in categories other than substance: with rationality and risibility, in quality. Avicenna seems to agree about the *propria* but perhaps not about the *differentiae*. Cf. Aristotle, Topics 101b18-9; Alexander, in Top. 38,11-5; 38,27-39,2.

In any case such items, like rationality and risibility have the paronyms, the rational and the risible. Since a substance that is rational or risible will be so her entire life—namely, a human substance—such paronymous terms do not occasion difficulty in conversion when used either referentially or attributively. However Avicenna still maintains that at least the *propria* are attached to the quiddities in themselves when they come to exist *in re* via an external cause. See Allan Bäck, "The *Triplex Status Naturae* and its Justification."

stances who have laughed at some time even while they are not laughing. Taken attributively, it refers to then only while they are laughing. The E conversion fails when it is taken attributively.

So, when paronymous terms are used, the switch of terms in converting raises problems. Here, to keep a simpler focus, I assume that the temporal determinants remain constant in conversion. Thus, if a proposition is being taken absolutely, *ut nunc*, relative to the time of an eclipse etc., its conversion be will taken in the same way. I wish to focus on the referential and the attributive ways of taking the proposition. Indeed, this seems to be the most important consideration for Avicenna himself in logic and has the strongest ties to his metaphysics. Varying this will often cause the time determinants to change as well.

We can see this again with A to I conversion. Following perhaps the passage from Alexander cited above, Avicenna rejects it on some ways of taking the propositions:

> So it is not inseparable, when every scribe is awake, i.e., at some time, [that] it is necessary that something awake be a scribe so long as its essence is existent or so long as it is awake. And in some cases it is necessary, as when we say: every man is an animal, i.e., as long as it is existent and always, and some animal is a man, i.e., as long as its essence is existent.[56]

Avicenna is accepting A to I conversion when the terms of the proposition are substantial, like 'man' and 'animal'. However, when they are accidental and paronymous, he rejects A to I conversion (sometimes). He offers the counterexample 'every scribe is awake; therefore something awake is a scribe'. Once again such terms raise problems for the scope of the time: At all times when something is a scribe it is awake. Still it does not

[56] Al-Qīyās 90,15-91,3.

follow that at all times when anything is awake it is a scribe. Again the terms must be taken attributively and not referentially.

Indeed, any accidental complex, even of a substantial and an accidental term, can occasion problems in conversion: e.g., 'no man is a scribe' can be true *ut nunc*, while 'no scribe is a man' is always false. When the modality is made explicit, as in modal logic, the same problems with conversion will arise.

These problems with conversion coming from the attributive use of the terms typically arise when at least one of the terms are accidental paronyms. In Aristotelian terms, such terms occurring together in a proposition make the proposition have contingent matter. They form a complex of what Aristotle himself calls being *per accidens*, which occasions fallacy and sophistry.[57] Perhaps Avicenna, like al-Fārābī before him, was thinking of this doctrine, although the texts are scant.

Even though they occasion problems, Avicenna seems to think that the accidental paronymous terms must be used in syllogistic. Indeed, Aristotelian demonstrative science mostly uses such terms, which signify proper and common accidents: its syllogisms show why the substances have the attributes signified by them.[58] Moreover, despite its problems Avicenna wants to keep this attributive use. For him it is the most proper use. To understand why, and how he saves it from fallacy, we need to make a metaphysical excursus.

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[57] As this doctrine is not applied explicitly, I omit discussing it. See Bäck, Aristotle's Theory of Predication, pp. 65-74.

[58] Likewise, Aristotle had to accept such terms—as demonstrations typically have expressions signifying *differentiae* and *propria* as their major terms, and these are mostly in the accidental categories. See Bäck, Aristotle's Theory of Predication, pp. 150-8.

Metaphysical Motivations

Some background about Avicenna's metaphysical views will help in understanding his views on the proposition. Avicenna has a famous doctrine that became the main medieval solution to the problem of universals: the threefold distinction of quiddity (*triplex status naturae*). According to it quiddities or essences have three respects: in themselves, in individuals, and in the mind. The doctrine extends to the terms signifying such quiddities, like 'goat', 'animal', 'rational' and 'white'. (Like Aristotle, Avicenna tends to assume an isomorphism between real things and a technical, protocol language describing them.) The threefold distinction of quiddity thus describes what terms signifying essences stand for—that is, how they refer or "suppose".

The most explicit formulation of Avicenna's doctrine appears in his commentary on Porphyry's Isagoge (known as the Logica in the Avicenna Latinus):

> The quiddities of things may be in individual things, and they may be in the mind. So they have three respects: the respect of quiddity inasmuch as that quiddity is not related to one of the two [modes of] existence, or to what is attached to the quiddity, insofar as it is in this respect. Also quiddity has a respect insofar as it is in individuals. There accidents which make particular its existence in that are attached to it. Also it has a respect insofar as it is in the mind. There accidents that make particular its existence in that are attached to it; like being a subject and being a predicate, and universality and particularity in predication … [59]

Avicenna is saying that quiddities have three respects: in themselves, in things, and in the mind. Quiddities in themselves have no accidents, whereas quiddities in individuals and

[59] Al-Madkhal 15,1-6; cf. Al-Ilāhiyyāt I.5.11, 24,16-7. Michael E Marmura, "Avicenna's Chapter on Universals in the *Isagoge* of his *Shifa*," pp. 36; 44-5, translates and discusses this passage. The distinction is what he calls, p. 42, "the second tripartite division".

those in the mind each have accidents proper to them. Quiddities in individuals and quiddities in the mind "exist", in different ways, *in re* and *in intellectu*, while quiddities in themselves do not exist, yet have "being" (*kuwn*) or subsistence and "reality" (. Sometimes Avicenna calls this subsistence "a proper (or special) existence". Still he insists that is not 'existence' in the usual way.[60]

Avicenna is claiming that a quiddity has three modes, not that there are three distinct types of things comprising that quiddity. For then the universal term naming that quiddity would have three distinct referents. If there were three referents, the universal term would just be ambiguous and name three different things. In contrast, here the same thing is being talked about somehow, yet in three different ways or respects. This suggests that, in Latin medieval terms, in such cases universal terms have the same signification but vary in supposition; in Avicenna's terms, in all cases the universal term signifies the quiddity or essence, which varies in what mode of being it has.

Quiddities in these three respects serve as truth-makers to ground our assertions. Assertions concerning the relations of essences, as expressed in definitions, come from the quiddities in themselves: e.g., 'being an animal (animality) belongs to being a horse (horseness)'.[61] These relations determine the modalities as we shall see. The assertions used in empirical science concern quiddities *in re*: 'some horses live in Baghdad'; 'no horse is blue'; 'every human being is risible'. Here we get claims about what states of affairs exist in the world; the quantifiers get us to instances of those quiddities. Their predicates can be proper (*propria*) or common accidents. Assertions about the formal features of quiddities are based upon the concepts, the quiddities in the mind: 'horse is a species';

[60] Al-Ilāhiyyāt I.5.9, 24,10-3. See Marmura, "Avicenna's Chapter on the Relative" in Hourani, Essays in Islamic Philosophy 83-99, pp. 91-2; The Metaphysics of the Healing, p. 386 n. 6.

[61] Al-Ilāhiyyāt V.1, especially 152,18-153,2.

'risible is predicated'. Their individual instances are concepts and mental events in individual minds.

For Avicenna propositions have their truth-makers on these different levels. Take his famous sophism: is horseness one or many? He claims that as a universal, as a quiddity *in intellectu*, it is one, a single concept, whereas *in re*, as a quiddity in individuals, it is many. In itself, it is neither one nor many: to signify this level of the quiddities in themselves Avicenna uses abstract nouns like 'horseness' or will use a 'qua' phrase: "the horse *qua* horse".[62]

As in his logic, Avicenna is admitting here more than one type of existence. He allows for quiddities to have existence *in re* and existence *in intellectu*—as well as some sort of quasi-existence, the "being" or subsistence held by quiddities in themselves.[63] In scientific contexts he prefers the robust, *in re* existence of actuality. Yet, in certain contexts, as we shall see, the other types of existence complicate his logical theory considerably: not only to handle assertions about the sophistical being *per accidens*, as with 'Homer is a poet', but also to handle modal claims about possible beings.

Also this threefold distinction of quiddity gives Avicenna three ways of understanding the universal. In Ilāhiyyāt V.1 he says, first, that something that is actually predicated of many is a universal, just as many individuals are called 'goat'. Here its instances exist *in re*. Second, he says that a universal is something if it is permissible to be predicated of many: for instance, consider 'heptagonal house', supposing that it never had or will have any instances. Still, "it is a universal inasmuch as it is its nature to be predi-

[62] Al-Ilāhiyyāt V.1.4-5; 149,7-150,2. The horse example recalls Topics I.5 and Alexander, in Top. 46,2-3.

[63] Still existence should be not construed as an accident. Cf. Black, "Mental Existence," pp. 62-3; Goodman, Avicenna Routeledge 1992 London, p. 77; Fazlur Rahman, "Essence and Existence in Ibn Sina: The Myth and the Reality," Hamdard Islamica 4 (1981), 3-14.

cable of many. But it does not follow necessarily that these many must exist—nay, not even one of them." [148,10-2, trans. Murmura] Third, "the universal' is [also] said of the meaning whose very conception does not prevent its being predicated of many. It is only prevented if some cause prevents it and proof indicates [such prevention]." [148,12-3, trans. Murmura] He gives Aristotle's example of the Sun and Earth; Aristotle had argued that the lack of material prevents there from being more than a single instance. [Cael. I.8-9]

So a universal in one way has the instances that it has existing *in re*. In other ways, in the last two senses, the universal has no real instances but has some merely possible ones. Avicenna does not explain much how the two differ. I suggest that the key lies in his speaking of 'cause'.[64] The second concern logical possibility, what is able to occur in some world but not necessarily in this one: what the relations between the quiddities in themselves permits or forbids. The third sense concerns physical possibility, what is able to occur in this world, *in re*, given causal circumstances and agency, ultimately of the Necessary Being, When Avicenna speaks of causes, he is often thinking about causes for things to exist in time (More on this below).

Avicenna stresses intellectual intuition. He thinks that we rational beings have direct intuition of the one, the existent, and the necessary (*ḍarūrī*).[65] Avicenna speaks here of apprehending "the existence of being" (*wujūd annīyati-hi*).[66] Also, once our active intellects have been awakened by philosophizing, we can have direct acquaintance with uni-

[64] Also the use of 'nature', which for Avicenna typically signifies the essence when it has come to exist *in re* and have matter and *propria*.

[65] Al-Ilāhiyyāt 22,11-2.

[66] Al-Nafs 5.7, p. 225; 1.1, p. 13. Avicenna uses the phrase *wujūd dhāti-ka* as well as *wujūd annīyati-hi* in 5.7, p. 225; at Al-Ishārāt p. 119, *annīyati-hā* is used. Cf. Ghassan Finianos. De l'existence à la nécessaire existence chez Avicenne, pp. 81; 86-7.

versals, his quiddities in themselves.[67] This connection enables us to separate those features belonging to the quiddities in themselves, stated in definitions, the formulae of the essences (as Aristotle had put it), from those that quiddities have always. Avicenna gives the example: suppose all the human beings whom you know came from the Sudan. Then, for you, all human beings would have black skin. Yet even so you would know that being black is not essential to a human being and does not belong to the definition, on account of being acquainted with humanity, the quiddity in itself.[68] This gives him a way to distinguish necessity from permanent existence, logical from physical modality.

Foundations of Modality

Avicenna considers the mode of a proposition to concern the relation of subject to predicate.[69] Already Aristotle's very phrasing of the modal connection in the syllogistic had suggested this: "belongs by necessity"; "possibly belongs", [25a1-2] So the modes are ways in which the predication relation holds: necessarily, possibly, impossibly; when a mode is not stated, that relation just holds absolutely, as with categorical propositions.

In contrast, Avicenna says, the matter of a proposition concerns the necessity etc. of the items being referred to in their existing.[70] In the Aristotelian tradition, the logical matter is determined by the predication relation too: if the predicate belongs to the subject necessarily, the proposition has necessary matter; if contingently, contingent matter; if

[67] Fī Nafs 39,3-40,16; 209,1-8; Bäck, "Avicenna and Kant on the Imagination," Topícos, Vol. 29 (2005)

[68] Al-Burhān, ed. A. Affifi (Cairo, 1959) 46,11-6 et passim. Cf. Avicenna, Al-Madkhal, ed. G. Anawati *et al*. (Cairo, 1952) 70,1-20 [= Logica 12r col.1]: "So if you say: Zayd is the handsome, tall, literate so-and-so [man]--as many attributes as you like, still the individuality of Zayd has not been determined for you in the intellect. Rather it is possible for the concept consisting of the totality of all that to belong to more than one."

[69] Al-Qīyās, 31,4-5; Al-'Ibāra, ed. M. Al-Khudayri. Cairo 1970, 112,6; 114,18. Perhaps following Ammonius, in de Int., 216,2-4. Al-Ishārāt 261, trans. Inati, p. 90

[70] Al-'Ibāra 112,10-5.

impossibly, impossible matter. So a proposition connecting, say, 'goat' with 'animal' will have necessary matter; 'goat' with 'standing', contingent matter; 'goat' with 'rock' impossible matter. The difference between the mode and the matter comes from the predication relation actually used. For instance, the (false) proposition, 'every goat is necessarily a rock', is necessary while its matter is impossible. Avicenna takes matter to be tied to existence, as opposed to form, which is tied to essence. Thus the mode of a proposition would be determined by the relations of the essences, his quiddities in themselves, say, goathood and rockiness, while the matter is determined by the existence: given that the thing referred to by the subject exists, must it, can it, or must it not have that predicate?

So Avicenna takes the distinction of mode and matter to reflect that of essence and existence. He uses *ḍarūrī* to signify the necessity of the modality, which for him concerns the essences, and *wājib* to signify the necessity of the matter, which for him concerns the existence of those essences.[71] The former does not require any instances of the essences to exist *in re*; the latter does. Aristotle had perhaps marked already such a distinction in his modal logic when he distinguished P's possibly belonging to all to which S belongs from P's possibly belonging to all to which S possibly belongs. [An. Pr. 32b15-32][72]

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[71] Shams Inati, p. 91, n. 4, urges us to keep the two radically apart; he translates *wājib* as 'Necessary in existence' and *ḍarūrī* as 'necessary'. On Alexander's conception of logical matter, see Alexander, in Top. 2,16-20; in An. Pr. 26,25. Barnes, 1990, 11-39; Kevin L. Flannery, "Ways into the Logic of Alexander of Aphrodisias," Philosophia Antiqua, vol. 62. Leiden: E. J. Brill, 1995, 111-131, p. 140, find Alexander's account incomprehensible.

[72] Below I suggest that this distinction motivates Avicenna's distinction between the predicational and the quantified reading of modal propositions.

This distinction of two types of necessity has great importance for understanding Avicenna's thought. It is made in his logical works and absent from the discussions in Al-Ilāhiyyāt (–aside from the references there to the logical works!). The logical concept of necessity is not the concept of necessity used in the metaphysical discussions of the necessary being. Avicenna says, "By the necessary (*ḍarūrī)* in this section of logic [Al-Qīyās] there is meant a sense more common/general than the necessity (*wājib)* of existence." [166,16-7] Here he is distinguishing *ḍarūrī* from *wājib.*[73] The latter is the "necessary" in Avicenna's stock phrase, "the necessary being", signifying God. The former is the "necessary" used as a modal operator in the syllogistic.

At least in some passages Avicenna is careful to keep the two expressions distinct.[74] Still he does not do so always. One reason is that he does not write carefully. Another is that the Arabic translation of On Interpretation, some version of which Avicenna was using, has a curious mixing of these terms. To translate Aristotle's simple 'necessary to be' (ΑΝΑΓΚΑΙΟΝ ΕΙΝΑΙ) at 22a3 et passim, it has: *wājib ḍarūran an yajibu*. (Here, perhaps, '*wājib*' is being taken as: 'it is asserted', but it is easy to think otherwise.) Again the Arabic translation generally uses *wājib* in On Interpretation and *ḍ arūrī* in the Prior Analytics. A third is that in making logical inferences about necessary beings the two expressions will be mixed even if Avicenna were writing carefully. For

[73] Al-'Ibāra, 119,1-8; Al-Qīyās, 166,16; 168,8-10; 169,16. Avicenna, 169,6-7, complicates the distinction by allowing further that logical necessity may be taken absolutely or hypothetically. In Al-Najāt, ed. Kurdi. Cairo, 1938, 20,1-5, he mentions the distinction but does not use it much. He does say, though, 25,8ff. that *ḍarūrī* describes everything determined in view of the *intellect* to exist. That is, to be necessary in this sense does not guarantee existence *in re*. Cf. too Al-Ishārāt, 320,1-2; 341,5; 343,15; 344,2. Al-Qīyās, 166,16-7; cf. 169,6-16. Avicenna regularly uses '*ḍarūrī*' in this sense, as opposed to '*wājib*', which indicates what is necessary in the existing world, and so has existential import. See Allan Bäck, "Avicenna and Averroes: Modality and Theology," in Potentialität und Possibilität, ed. T. Buchheim et al. (Stuttgart, 2001).

[74] E.g., Al-Qīyās 151,14-152,5

an inference from statements about the metaphysically necessary will follow by logical necessity; also some logically necessary claims will come to exist necessarily in the world, as with the matter of propositions.

For Avicenna logical necessity applies to subjects that always exist as well as to those that do not always exist, or even to those that never exist. It is necessary that every swan is an animal, but it is not necessary that every swan exist at all times. It is necessary that every heptagonal house is a house, but it is not necessary that any ever be built. There are many possibilities that never exist.[75] So 'necessary' does not imply 'always' or even 'sometimes'. Likewise, 'always' does not imply 'necessary'.[76] As in the Sudan example, many things may exist always without being necessary.[77] Aristotle had said the same. [An. Po. 75a29-34; 72a28]

Avicenna views the logical modalities normally to concern the predication relation, based on the quiddities in themselves signified by the terms. He allows modal propositions to have two readings, one considering only the relations between the concepts of the subject and predicate ("in respect of the predication"); another considering the instances of those concepts ("in respect of the quantifier").[78] The predicational reading is a type of *de dicto*, compound reading, like 'necessary (S is P)'. The quantifier

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[75] Al-Qīyās, 33,11-5.

[76] Marmura, "Avicenna on Causal Priority," 65-83 in Islamic Philosophy and Mysticism, ed. P. Morewedge Caravan Books, Delmar NY 1981, p. 68, agrees that for Avicenna regularity does not entail necessity.

[77] Al-Ishārāt 325,1-3, trans. Inati: "And know that the permanent is non-necessary. So scribehood may be denied of some individual permanently in the state of his existence, aside from the state of his non-existence, whereas that denial is not necessary." 329,1-3: "An example: we say: every C is B always, so that we are as if we are saying: each and every C, according to the explanation that we have given, has B present/existent to it always, as long as the essence is existent, without necessity." Street 2002, p. 130, says that Al-Najāt runs together modality and time, whereas Al-Qīyās and Al-Ishārāt do not.

[78] Al-Qīyās,142,14-7; Al-'Ibāra, 112,15-113,5; 115,2-11.. Cf. Philoponus, *in An. Pr*. 43,8-13. Street, "An Outline of Avicenna's Syllogistic, Archiv 2002 Vol. 84 129-60, p. 133; Thom, Medieval Modal Systems, p. 68.

reading is a type of *de re*, divided reading, like 'S is necessarily P'. In both cases the modality ('necessarily') goes with the predication ('is'). Their difference becomes manifest when combined with the existence condition for (affirmative) propositions, 'there exist S's'. The quantified reading amounts to talking of necessary properties of existing S's, especially when the existence is taken to be *in re* and not *in intellectu*. The predicational reading amounts to talking to necessary properties of all possible S's, where the existence condition is usually *in intellectu* only.[79] Avicenna favors the predicational reading in demonstration, as science deals with things that have real instances only at some times, like eclipses, and those that have no real instances ever, like chiliagons.[80] Thus he remarks that 'no eclipse is an eclipse' is false on the predicational but true on the quantified reading (presumably when there are no eclipses).[81] Avicenna says that ordinary (Arabic *and* Persian?) language has a strong presumption for the divided sense so as to have actually existing subjects. However, the logician does not require this.[82] Still Avicenna advises using the divided sense in making inferences (in most contexts), with the presumption of existence *in re*.[83]

On the predicational reading, Avicenna will allow for the truth of a simple affirmation having no instances *in re*. He says that "…the intellect may characterize it insofar as its existence in act is such…"[84] In order to make it possible that many statements about numbers or figures be true, we must allow that they need not have no instances ex-

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[79] Cf. Al-Burhān 91,14-6.

[80] See Bäck, "Avicenna on the Categorical Assertive," pp. 148-50. This is Thom's ampliated reading in Medieval Modal Systems, p. 67, and "Logic and Metaphysics in Avicenna's Modal Syllogistic," p. 362.Street 2002 135 "I cannot find a statement in Avicenna's works that the modals do not have the same subject-terms that the temporals have."

[81] Al-Qîyās 138,8-9.

[82] Al-'Ibāra 115,12-116,9.

[83] Al-'Ibāra116,13-4.

[84] Al-Qîyās 21,6-12

isting *in re*.[85] Avicenna says to consider in such cases whether the proposition is true, and not whether an existent subject has the attributed as asserted.[86] He proceeds to argue that on the quantified reading 'some colors are black' cannot be true by necessity for two reasons: since there need not exist any black things at some time, and since the necessity (*ḍarūrī*)) here does not concern the existent things. Still, taken in consideration of the predication, 'some colors are black by necessity' can be true, given that there is an essential relation between the genus color and its species like whiteness and blackness.[87] Because such modal propositions are not restricted to what exists *in re*, normally they should be understood to concern the predication and not the quantifier.[88]

On neither reading is a modal operator being attached to the one of the terms of the proposition, as in 'every necessary goat is a rock'—or, if you like, more colloquially, 'everything that is a goat by necessity is a rock'.[89] Such modalized terms, like 'necessary goat', appear in the syllogistic of neither Aristotle nor Avicenna.

Avicenna does though seem to allow modality to be attached to the terms, when he speaks of "the necessary in existence" and "the possible in existence". However here the modality has a different function. E.g., in 'the necessary being is necessarily unique',

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[85] Al-Qīyās 21,6-12; cf. Al-Madkhal, 66,4-7; 69,16-8 [=Logica 9r col. 2]. On intelligible matter cf. Aristotle, Metaph. 1038a7; 1058a21-5.

[86] Al-Qīyās 84,16-85,2; Al-Ishārāt III.2.1, 271,8-12; Manṭiq al-Mashriqiyyin (Cairo, 1973). 64,2-4.

[87] Al-Qīyās 137,11; cf. 141,12-3; Manṭiq al-Mashriqīyyin 68,3-5; Al-Ishārāt 337,1.33.

[88] Al-Qīyās 151,9-13; 164,7. Cf. Al-Burhān 71,13ff.

[89] Avicenna is aware of this option. Al-Qīyās 127,3-6 offers the following construal of INAANA: Zayd is white by necessity and everything white by necessity is a color standing out in sight—then Avicenna says tht the minor is false. This might suggest that the middle term is 'white by necessity'—but then he is discussing others' views. The passage (to 127,130 does seem to go on and use the ekethsis proof of Alexander et al. See Bäck's hypertext on this passage in the Archelogos Project.

Some construe *de re* necessity thus and also take Avicenna (or Aristotle) to be doing so in proving a mixed modal syllogism like INAANA. E.g., Thom, Medieval Modal Systems, p. 68; "Logic and Metaphysics in Avicenna's Modal Syllogistic," pp. 366-7; Asad Ahmed," Avicenna's Reception of Aristotle's Modal Syllogistic," p. 17-8. Ahmed, p. 21, has Avicenna having the standard *de re* and *de dicto* readings of modal propositions. But taking Al-Najāt 37; 44 and Al-Qīyās 31 for NA to be: (x)(Bx ✇ NAx) has its problems!

'necessary' [*wājib*] specifies the mode of how the essence of the subject is existent, namely that it exists necessarily and always, while 'necessarily'[*ḍarūrī*] indicates there that that subject has an essential connection to being unique. The modality in logic concerns the predication relation; the modality in metaphysics concerns the way in which the objects being referred to by a term exists. Hence the latter are necessary in the sense of '*wājib*'.

Similar distinctions apply to statements about 'possible beings', those that are "contingent in existence".[90] Avicenna does not have two different words for 'possible' as he (sometimes!) does for 'necessary', perhaps because he distinguishes more than two senses of 'possible'. Some of them are logical as they divorce possibility completely from time: "the possible is what is not existent and not necessary [nor impossible]."[91] Others are physical as they have existence as determined by an external cause.

In ordinary contexts, in speaking of "possible beings", we are speaking about things that exist in fact but contingently so, depending upon external causes. Avicenna generally uses this sense when speaking of "possible beings" in his metaphysics: beings that do exist but need not exist.[92] However, we might speak of beings that could exist but do not in fact.

In contexts where the subject is being claimed to exist *in re* while the modality is attached to the copula as usual, then, given the existence of the subject, 'necessary' can

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[90] He does note, Al-'Ibāra 114,10-6, that Aristotle has two different words [DUNATO¢N and EUNDECO¢MENON] but like Aristotle uses them interchangeably in his logic. Aristotle at times distinguishes the potential (DUNATO¢N) from the possible (EUNDECO¢MENON), e.g. at Metaph. IX.4. But not in his logical works: cf. Int. 12; An. Pr. 34a5-12; 31b8-9; J. L. Ackrill: Aristotle's *Categories* and *De Interpretatione*. Oxford 1963, p. 149; Robin Smith, trans. & comm.: Prior Analytics. Indianapolis 1989, pp. 123; 131.

[91] Al-Qīyās 164,14; the definitions are summarized 164,12-7.

[92] Al-Najāt 19,4-5; 25,21-2. Al-Mantiq al-Mashriqiyyin. Cairo, 1973, 73,18-74,7; Al-Ishārāt 320,30-8.

be signified by '*wājib*'.[93] Here 'necessary' implies 'always', in one of its varieties. For, when we speak of the subject having the predicate "always", we may ask about the existence of the subject: does it exist only at some times or at all times? Does it exist at all times necessarily or contingently?

Do then modal propositions taken logically in the sense of *ḍarūrī* still have an existence condition on the predicational reading? At least their subjects "subsist" in the mode of quiddities in themselves. Avicenna does not offer much of an explicit answer; below I speculate that he requires existence in the divine intellect for true modal statements. This question also has the complication that, insofar as modal propositions are propositions or terms and are being thought about in the logician's mind, they exist *in intellectu*. As Marmura says, distinguish here what is being conceived from the fact that it is being conceived.[94] That mental existence is not the primary focus. On the other hand, Avicenna seems to link the subsistence to existence in a divine mind, as discussed below.

The distinction of logical and physical modality dovetails with Avicenna's threefold distinction of quiddity (*triplex status naturae*). Logical modality concerns the interrelations of quiddities in themselves. Thus, horseness (*equinitas*) has animality necessarily, but whiteness possibly. Definitional statements concern this respect, of quiddities in themselves. Thus horse is animal necessarily and is white only contingently, even if in fact all horses at all times have been white or if no horses ever existed. Predications of

[93] Al-'Ibāra 112,8-10; Al-Najāt 16,4-5; Al-Ishārāt 314,1; 318,1-3: "And there is included in this possible the existence for whose existence there is no duration of necessity even if it has necessity in one time and in another like the eclipse."

[94] Michael E. Marmura, "Avicenna's Chapter on Universals in the *Isagoge* of his *Shifa*," p. 45. Cf. p. 36: "Thus, although logical concepts exist in the mind, logic as such is not concerned with their existence in the mind. It is concerned with them in themselves and with the relationships that obtain between them."

the material accidents, typically contingent, concern the quiddities in individuals.[95] (Speaking of formal features, like being a material accident or a universal, concerns the quiddities in the mind, as in 'some propositions are true'.)

Avicenna ties the attributive reading of the paronymous term to the level of the quiddity in itself. Such statements about 'the white' considered abstractly, as not presupposing a thing, a substance, that is white, are grounded upon the level of quiddities in themselves.[96] In this sense 'everything white is necessarily colored' is true, since color is the genus for whiteness and appears in its definition. When Avicenna is taking this sense, he tends to use the qua phrasing: 'the white *qua* white'; 'the scribe *qua* scribe', just as he does in talking of 'horseness' as 'horse *qua* horse'. Still, referentially, 'everything white is necessarily colored' is false: there are many things existing *in re* that are white but only contingently so.

Physical modality concerns actual existents, primarily the quiddities *in re* and secondarily those *in intellectu*. (Only here does the notion of potentiality or ability come into play, as only actual things have "potentialities" or actual powers.[97]) The statements of their interrelations will hold of things existing necessarily or contingently and having necessary attributes, contingent accidents, and actual potentialities or powers. Some of these modal statements will gain their truth values from the relations of logical modality: 'it is necessary that some goats are rocks' is false.

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[95] Again, the proper accidents, having a necessary connection to their subjects, present difficulties, which I shall not discuss here. See n. 55.

[96] Al-Qīyās 144,9-145,10. Cf. too Al-'Ibāra, 115-3-11; Al-Qīyās 99,9-100,12, on 'scribe *qua* scribe' as signifying a quiddity in itself; cf. Al-Ilāhiyāt V.1, 196,8-197,5 on the equivalence of 'horseness' with 'horse *qua* horse'. On 'builder *qua* builder'; cf. Aristotle, Physics 191b4-5.

[97] Avicenna does discuss potentiality, *pace* Barry Kogan, Averroes, p. 35 n. 39. Cf. Al-'Ibāra 118,12-120,9; Al-Ilāhiyāt IV.2.

The different modes have their truth-makers on different levels of quiddities. Necessary ones express relations between quiddities in themselves; possible ones between quiddities *in intellectu*; categorical ones between quiddities in individuals. What complicates this scheme is that, as these modes are attached to statements, they become attached to assertions of existence. The modalities themselves concern the relation between subject and predicate; the existence condition has a separate cause of truth. In statements, the existence condition is given by the copula; the duration is given by contextual features, typically either the subject term or the predicate term. When Avicenna talks about possible beings and necessary beings, here the necessity is *de re* and concerns the matter and not the mode.

The Modal Logic

The doctrine of the matter of the proposition makes easy a transition from the categorical to the modal syllogistic. When the mode and the matter match up, we get true modal propositions. Those true propositions having necessary matter turn into true necessary premises; those having possible (contingent: not necessary and not necessary not) matter into possible premises; those having impossible matter turn into the contradictories of the necessary propositions, as 'impossible' is 'necessary not'.[98] (Avicenna tends not to use the one-sided possible (not necessary not): he holds that this use is vulgar and not suited for the experts. Similarly Aristotle had allowed for it secondarily, while making the contingent the primary sense used.[99])

[98] Cf. Lagerlund 2000, 39.
[99] Aristotle, Prior Analytics I.3 & 13; On Interpretation 13.

Not surprisingly, Avicenna has doctrines about conversions in the modal syllogistic like those in the categorical syllogistic: the conversions generally fail when there are paronymous accidental terms taken attributively.[100] Consider the conversion of the universal affirmative, as with 'every scribe is necessarily a man'. This is true for any scribe at any time while being a scribe. Yet it is not necessary, at any time, that some man is a scribe. Once again the conversion does follow if the terms are taken referentially. Then 'scribe' refers to a human being. In effect, taking such accidental terms as 'scribe' attributively makes the necessary proposition have contingent matter.

Avicenna seems to offer, obscurely, a way to forestall such counterexamples: to 'every S is necessarily P', where the 'S' term is accidental and the 'P' term essential,[101] add on 'qua S', understood as 'so long as the essence of S is existent' or 'in respect of being S'.[102] (This solution too has its Greek roots.[103]) E.g., 'every scribe is necessarily a man so long as he is a scribe'; hence 'some man is necessarily a scribe so long as he is a scribe'. The qua phrase restricts the usual reference of the terms. Given his use of such 'qua' phrases in discussing the quiddities in themselves, Avicenna likely thinks that the

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[100] Philoponus, in An. Pr. 48,18-49,31 reports what Alexander says about other objections to NE conversion, which Avicenna does not discuss. Street, "Logic," in Cambridge Companion 259-60, claims that Avicenna takes NA to NI conversion to be invalid at Al-Ishārāt 334-5, but Avicenna says, "with common application"--whether the proposition be taken referentially, attributive etc. Asad Ahmed," Avicenna's Reception of Aristotle's Modal Syllogistic," p. 19, has Avicenna endorsing NA and NE conversion without exception (from Najat) [but this is too strong] Even Ahmed goes on, p. 20, to note problems with E conversion when there are accidental terms or certain time constraints.

[101] With the 'P' term accidental as well, there are more complications. See below.

[102] Al-Qīyās 99.9-100,12. Avicenna worries about how to attach the qua phrase in conversion at 210,,8-11. He does not consider the case when both terms are accidental: first, in most cases they will not give a true necessary statement; second, when they do, as with 'everything white is necessarily colored', a single qualification, 'qua white', will suffice. Still, I suppose, a qualification of each term would be possible. Cf. Lagerlund, "Avicenna and Ṭusī on Modal Logic," p. 233, n. 13.

[103] Thom, "Avicenna," Medieval Modal Systems, Appendix 3; p. 24, discusses the history of adding on such qua phrases and notes that it goes back to Alexander's teacher Sosigenes. Cf. Alexander, in An. Pr. 155,23-5.

qua phrase put here will keep the statement focused on the modal relation. The same qualification will make the E and I conversions valid.

The other major issue in Avicenna's modal logic concerns certain mixed syllogisms. Aristotle had made the surprising claim that some syllogisms having mixed premises yield the stronger conclusion: from a necessary and a categorical premise sometimes a necessary conclusion follows; from a necessary and a possible premise sometimes a categorical one does.[104] Already his successor Theophrastus protested. Still some Aristotelians like Alexander of Aphrodisias defended Aristotle's original claims. So does Avicenna.

The famous syllogism is INAANA: If it is necessary that every B is A, and every C is B, then it is necessary that every C is A. Aristotle says by way of proof just that C is ones of the B's, seemingly a proof by *ekthesis*. [An. Pr. 30a1723] Theophrastus rejected its validity. He proposed a rule [Alexander, 124,8-13] that the conclusion is similar in modality to the weaker of the premises, here the minor, and was followed by Syrianus, Eudemus, and Proclus. They argued also that the categorical premise suggests that it is possible at some time for the predicate to be separated from the subject, and, so if we take that time, the major will not belong to the minor term (Alexander, 124,18-21). Alexander and Iamblichus followed Aristotle; cf. Ammonius, in An. Pr. 38,38. Philoponus too follows Aristotle and gives, 122,28-9, as Aristotle's the rule that the modality of the conclusion is determined by that of the major premise.

Alexander, 124,31-125,2, reports convincing counter-examples (based perhaps on the very counterexample that Aristotle gives for IANANA!!) like: 'every man is an ani-

[104] Such cases, like I NEPAE at 36a7-17, stands or falls with Aristotle's proof for I NAANA, which then justifies I NEINO. So I won't discuss it separately. Cf. Alexander, 173,33-174,3; 174,1-7-9.

mal by necessity, and everything moving is a man [let's suppose], but it is not necessary that everything moving is an animal by necessity'. (from Alexander, 124,24-5; also Philoponus, 124,25-8). The minor premise is being taken *ut nunc*.

Nevertheless Avicenna defends INAANA:

> ...people are amazed at this conclusion's being necessary, and disqualify this belief. And yet a single thing deceives them. And that is because they suppose that the necessary here is everything that is necessary as long as the essence of the subject is existent, or necessary as long as it is characterized by what characterizes it, so that, when it is said: 'everything white is by necessity [something] having a color standing out in sight', they suppose it to be really necessary. And likewise when it is said: 'by necessity nothing that is white is black', they suppose it to be really necessary. And, when they say: 'Zayd is white, and everything white is by necessity [something] having a color standing out in sight', it will not have been concluded for them: 'Zayd has a color standing out in sight by necessity', unless Zayd is white by necessity. And similarly when it has been concluded for them in the example of the black that Zayd is not black, not by necessity, and all of this is because they are not concerned with establishing the reality of what is being said of the whole in a necessary statement, so as to comprehend the difference between our saying: [1] 'everything white is by necessity [something] standing out in sight', since its sense is 'what is characterized as being white', however it be characterized as being white. So if it, as long as its essence is existent, is white or is not white, it is [something] having a color standing out in sight. Or, [2] 'everything that is characterized as being white, however it be, then, as long as it is white, is [something] having a color standing out in sight, or by necessity is not black'. And you have

> learned above that the viewpoints explain our distinction, and how the first one is false.[105]

Note that Avicenna rejects the modalized predicate reading, where the major term becomes 'white by necessity'. [126,12] (Remember that modalities like 'necessary' and 'contingent' concern the relation of predicate to subject, not modal predicates of subjects existing *in re*.) He also distinguishes for the accidental term between the referential and the attributive readings.

On account of the time restriction, Alexander's counterexample is complex. Avicenna offers an easier one: 'Zayd is white, and everything white is by necessity [something] having a color standing out in sight; therefore Zayd has a color standing out in sight by necessity'. (In the Aristotelian tradition, 'whiteness' is defined as 'a color standing out in sight'.[106]) Replace the minor premise with 'every swan is white' (so as not to have a singular term in the syllogistic). Suppose it to be true at all times, as the Aristotelian tradition did, while also claiming that it is not necessary.[107]

Here the problem lies in the major premise. Referentially it is false: a statue can be white for a time but is not necessarily white as it can change its color. Attributively it is false too: even if something is white as long as it is white, like a swan or a particular statue or every swan, it is not necessarily white: the statue or swan could have been black. Note that for this to work modality and time are distinct, as Avicenna indeed asserts: 'necessary' is not equivalent to 'always'.

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[105] Al-Qīyās 126,5-127,3.

[106] Porphyry, in Cat. 124,5; Ammonius, in Categorias, ed. A. Busse (Berlin, 1895), 45,2; 40, 13-4. Alexander, in Top. 427,19.

[107] Posterior Analytics. I.4; Prior Analytics 26a30-b21. Themistius, In Analyticorum Posteriorum Paraphrasis, p. 10,14-9, notes that this definition is stronger than that used in the syllogistic. Cf. Philoponus, In Aristotelis Analytica Posteriora Commentaria, p. 58,26ff.

Alexander's counterexample likewise fails with the major premise, but for more complex reasons. (The following is a bit speculative as Avicenna does not discuss this particular example.) Suppose everything moving is a man at some time, say t_p. The referential reading cannot apply because it would wipe out the time restriction to t_p; without that time restriction the minor premise is false. As we have seen in discussing conversion, for the attributive reading to hold the qua phrase must be understood: 'insofar as it is moving'. Then the minor premise is true. Avicenna seems to hold that, once this qua phrase appears in one premise, it must also appear in the other. But then, it seems, the major premise is false: 'it is necessary that every man is an animal, insofar as he is moving'. To prove this requires discussing what Avicenna means by such qua phrases. I have done so elsewhere.[108] Suffice it to say here: it means 'in the respect of moving' or 'because it is moving'. But a man is necessarily an animal not because he is moving.

Avicenna's general solution to the objections to the validity of INAANA lies in distinguishing the referential and the attributive readings and then showing that on neither one are both premises true.[109] Hence no counterexample and no invalidity. IANANA remains invalid: 'every goat is necessarily an animal; every animal is terrestrial; therefore every goat is necessarily terrestrial'.

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[108] On Reduplication, Chapter Three.

[109] Street, "Logic," in Cambridge Companion 260 admits this too; in Street 2002, p. 131, he says that Aristotle uses the attributive reading to save Aristotle, and the referential reading more for his own views. Angelelli, 1979, pp. 202-4, comes close to Avicenna's position when he analyzes necessary in terms of o-predicates [*ousia* predicates] and s-predicates [*sumbebekos* predicates]. The former hold of the subject so long as it is existing, while the latter need not. Angelelli too is willing to consider the various combinations in a statement, 'S is P': read as 'everything that is S is something that is P', we can consider the various combinations of o- and s-predicates. Angelelli however sees the introduction of o- and s-predicates as "modalizing" the subject and predicate. However, Avicenna seems not to. Angelelli sees the modalities in the s- and o- sentences to give the internal modalities and an external modality attached to the statement as a whole ('N(S is P') as noted at Prior Analytics 32b25-37.

Other modal syllogisms fare similarly. For instance, with IIENA [Cesare] Aristotle has it invalid simply, but Avicenna with all of these different readings of the premises can distinguish cases in which it is valid.[110] IINAE for Avicenna as for Aristotle does not yield a valid syllogism.[111]

What necessary propositions are true then for Avicenna? 1) referentially, those having substantial terms ('goat' and 'animal') in necessary matter. This gives essential connections between the terms and predictions holding so long as the subject exists. (Terms signifying *differentiae* and *propria* are substantial.) 2) attributively, the accidental terms only with the qua phrase restriction. (For substantial terms, the attributive reading and the referential one are the same.) The white necessarily stands out in sight insofar as it is white. In both cases, the truth of the necessary statements is based upon the relations of quiddities in themselves.

This defense of INAANA can be seen to be a development and explanation of the solution of Alexander, al-Fārābī *et al*. when they say that INAANA holds for *per se* but not *per accidens* modal statements. Once again, think of Avicenna as working out the hints provided by his predecessors and then leaving pointers of his own.[112]

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[110] Prior Analytics 30b7-9; Al-Qīyās 131,11-4 .

[111] Prior Analytics 30b9-18; Al-Qīyās 131,14-133.10. Thom, "Avicenna," Medieval Modal Systems, p. 66, claims that Avicenna recognizes no valid categorical syllogisms in the second figure, but Avicenna Al-Najāt 34,10, says this holds only "on the condition mentioned. He is again distinguishing different readings and proceeds to give the usual moods. Thom, p. 79, says that Avicenna unlike Aristotle takes as valid Camestres and Baroco LX; Cesare, Festino, and Baroco XLL; again it depends on the reading.

[112] Street, "Logic," in Cambridge Companion, p. 259, however says: "In other words, Avicenna did not seek to exclude certain propositions from the Aristotelian rule; he just changed the rule. The Farabians changed their system to fit the text; Avicenna changed the text to fit his system." Averroes, Quaesitum IV.3, Vol. I.2b 83vb-84ra follows al-Fārābī. Cf. Thom, Medieval Modal Syllogisms, 82-4; Lagerlund, Modal Syllogistics, p. 32, says that in a necessary *per se* proposition, its term subject term "always stands for its subject," while in one *per accidens* it "does not always stand for its subject."

The Hidden Doctrine?

> Most of those who pretend to be philosophers learn logic but do not use it.[113]

What then should we make of Avicenna's theory? Given its disorganization and obscurity of expression, we can find it easy to dismiss it as insightful at times but not coherent as a whole. Avicenna inherited a mass of distinctions, upon which he comments *en passant*. He never seems to offer an overall account. Nevertheless I have proposed being more charitable and striving to reconstruct the theory underneath, which Avicenna himself claims to have hidden. He offers pointers to us, just as, he thinks, Aristotle offered some to him. So I offer now further reconstruction. I admit that in doing so it is hard to distinguish what I myself am doing from what Avicenna himself has done. Yet perhaps he intended this all along, with his "pointers".

How does Avicenna's logical theory help with his metaphysics, then? Above all, in understanding his conception of necessary and possible being.

Underneath all the complexity Avicenna has a fairly simple scheme. This becomes evident if we begin, as he himself counsels, from his logical theory. He distinguishes two conditions for the truth of a proposition: one based upon existence; the other based upon essence or quiddity. So for the truth of a universal affirmative A proposition, 'every S is P', he requires: S's exist and P belongs to (is predicated of) every such S.[114] In terms of the ontology, which provides the truth-makers for the proposition, the existence condition is grounded on the action of an external cause—ultimately, God, the necessary being, while the essence condition is grounded on the internal relations of the

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[113] Al- Ilāhiyyāt 41,5-6 [trans. Marmura].

[114] In effect what he has done is add on an explicit existence condition to the copulative account of the proposition of al-Fārābī.

quiddities in themselves, signified by the 'S' and 'P' terms. Time and duration concern existence and not essence; modality and predication concern essence and not existence.

Modality then is based on relations of quiddities in themselves apart from any claims of existing *in re*. What being they have objectively comes from just subsisting as quiddities in themselves, as possible elements of statements. Their existence in statements with modalities or in complexes able to be rendered by definitions, and thus existing *in intellectu*, may also be taken minimally. Consider 'it is necessary that every/some heptagonal house is a house': in some sense it does seem necessary, even when there are no heptagonal houses.[115] When a statement is taken strictly thus, so as to assert relations between things in themselves, its terms are accidental taken attributively or substantive. With this restriction the mixed modal syllogisms like INAANA stay valid—and give a way for necessity to exist *in re*.[116]

As a statement is made by someone and indeed for Avicenna is a second intention in a mind, insofar as it is referred to in a statement a quiddity can be said to have existence *in intellectu* through that mental activity. Thus Avicenna says that a quiddity in itself must exist either *in re* or *in intellectu*.[117] For him, true modal statements have their objectivity as they exist in God's mind; false ones and sophistical, *per accidens* ones exist only in some human minds.[118] Yet it remains obscure whether their existence in a di-

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[115] Still the presence of the quantifier ordinarily suggests the need for actual instances.

[116] Perhaps this is not too fanciful: consider the syllogism: some existing thing is a goat and every goat is an animal by necessity. By INAINI we get: some existing thing is an animal by necessity. The minor premise converts to: some goat is an existing thing. That plus the major premise amounts to the truth conditions for the universal affirmative, 'every goat is an animal by necessity',

[117] Al- Ilāhiyyāt 32,4-5; 205,20-2; 204,16-205,2. Deborah Black "Mental Existence in Thomas Aquinas and Avicenna," Mediaeval Studies 62 1999 45-79, pp. 50-2, says that mental existence is equated by Avicenna with the natures' existing in the mind of God or some other.

[118] Al-Madkhal 69,62-13. Michael Marmura, "Avicenna's Chapter on Universals in the *Isagoge* of his *Shifa"*.p. 35; "Some Aspects" p. 301 n. 18; Thérèse-Anne Druart, "'Shay' or 'res' as Concomitant of 'Being' in Avicenna," Documenti e Studi sulla Tradizione Filosofica Medievale, 12 (2001): 125-42, p. 135,

vine mind is a cause or a symptom of their truth; likewise for the subsistence of quiddities in themselves.[119]

I favor the symptom view, as it solves the "serious difficulties" of Deborah Black.[120] For one, what about possible false statements that don't exist in any minds but could? Statements about impossible objects of which no one has even thought will remain logically possible but not physically possible. For another, concepts like heptagonal house and the phoenix seem possible. However Avicenna in his "Letter on the Soul" says that they are impossible as their instances never exist. Once again, the necessity is physical and not logical.[121] Quiddities not existing in the divine intellect cannot function as causes. Still they remain logically possible.

We have already seen that Avicenna distinguishes logical necessity (*ḍarūrī*) from ontological necessity (*wājib*).[122] The necessary being is *wājib* where this specifies the mode of how the essence of the subject is existent, namely, by logical necessity for some stretch of time. Likewise ontologically possible beings are those that are logically possible in respect to their existing in time.

As in his logic, Avicenna sharply distinguishes modality from time. He says that the possible existent is possible in itself; this precedes whether and how long it exists in

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claims that : god and angels don't conceive fictitious or impossible beings; only humans do. Cf. "The Letter on the Soul, 159,56-7.

[119] Druart, "Averroes on God's Knowledge of Being qua Being," in Studies in Thomistic Theology, ed. P. Lockey 1996 Houston, Center for Thomistic Studies, p. 179, says that Averroes holds that "God's Knowledge causes beings, whereas ours is caused by beings."

[120] Deborah Black, "Avicenna on the ontological and epistemic status of fictional beings," Documenti e Studi sulla Tradizione Filosofica Medievale 8: 425-453 (1997), p. 435.

[121] Deborah Black, "Avicenna on the Ontological and Epistemic status of Fictional Beings," p. 452.

[122] Catarina Belo, "Essence and Existence in Avicenna and Averroes," Al-Qanṭara XXX 2, 2009, 403-426, p. 412L "In abstract terms, then, existence is not an accident but a general concept. Once the notion of causality is introduced existence becomes an accident." I say rather: two types of modality, not existence here.

time.[123] Moreover, the necessary being does not enter into the flow of time.[124] Its priority over possible beings is not temporal.[125]

The transition from logical to ontological modality has great difficulties, which I cannot address fully here. For if the necessary being is outside of time, how does it come to exist always, to be *wājib*? How is an eternal being related to time? Let me just remark here that for Avicenna the necessary being does not exist *in re* as a normal individual: it is not an object of perceptual experience. Rather its existence must be presupposed from the existence of contingent individuals. The necessity is *ḍarūrī*, in itself; only in its extrinsic effects, relative to our experience in time, is it *wājib*. The enlightened, prophetic philosopher may have intellectual insight of necessary being in itself—but this experience is not democratic. Think of the necessary being like Plato's Form of the Good, which is the source of all beings while itself having a "being" transcending such existence.

Avicenna says that the necessary being is necessary when considered in itself, while a possible being is not.[126] The modality holds "in itself", on the level of quiddities in themselves. As possible beings are contingent, they may exist or may not exist *in re*. Those that do exist need a cause making them exist. Think of his doctrine of necessary matter: rational animal has it, but it is not necessary for any rational animals to exist. Their existence requires a cause.

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[123] Al-Ilāhiyyāt 38,5-8. Frank Griffel, Al-Ghazālī's Philosophical Theology Oxfrod 2009, p. 168 "For Avicenna, the principle of plenitude is valid for existence in the mind but not for existence *in re*." He says also that the heptagonal house example shows that "here clearly Avicenna divorces modality from time."

[124] Al-Ilāhiyyāt VIII.6.21 290,7-9; Al-Ṭabīʿa (Physics) III.11.3 364,1-2.

[125] Al-Ilāhiyyāt 272,14-7.

[126] Al-Ilāhiyyāt 29,15-30,3.

Like Aristotle, Avicenna conceives a cause to move something from non-existence to existence. Something that always exists then might need no cause. But, if so, do stars need causes to exist? Avicenna says that they exist always but contingently. Again let me just remark here that, perhaps, Avicenna thinks that any compound needs a cause, so as to combine its simple constituents. Thus he says that the necessary being has no cause; only contingent, *composite* things have causes.[127] Like Aristotle, Avicenna recognizes both perceptible and intelligible matter. The causal relation for Avicenna is always external: it connects up quiddities via the glue of matter, thought of as pure receptivity and potentiality.[128] For Avicenna, matter is in general the notion of serving as a ground or substratum for the reception of a type of accidents. This is why the necessary being, as it is simple, has no cause and is not self-caused. Yet other intelligible objects, being complex, need causes. Certainly conclusions of syllogisms do, as the middle term is the cause of the predication. Even primary axioms do, as such propositions are second intentions caused by the activity of the intellect in which they reside. Even quiddities in themselves composed of genera and *differentiae*, like goat or animal, perhaps need a cause combining them: again, perhaps, the activity of the divine intellect thinking them. Only simple quiddities in themselves need no causes in any respect. The existence of

[127] Al-Ilāhiyyāt I.6.2 30,4-7. This probably accounts for why the necessary being has no definition, a compound of genus and *differentia*. Or, perhaps the necessary being cannot have a definition because then you get predication relations between the genus and the differentiae, where it is not necessary for the genus to have a particular *differentia*. E.g., 'animal is rational' is not necessary.

[128] Al-Najāt 451; Al-Ishārāt 101-2. Hence Goodman, Avicenna Routeledge 1992 London, p. 67 "all complex beings are contingent." So too Goichon 1937, 468-73; Ivry, 'Destiny Revisited," p. 167; Belo, Chance and Determinism in Avicenna and Averroes, 58; Wisnovsky, Wisnovsky, "Avicenna," in Cambridge Companion, 123; 126; Bäck, "The *Triplex Status Naturae*;" Bertolacci, "The Doctrine of Material and Formal Causality in the Ilāhiyyāt of Avicenna's kitb as shifa" Quaestio 2 2002 125-54, p. 130.

quiddities in the divine mind, coupled with its intentional volition, enables them to function as final causes; once quiddities exist *in re*, their forms can function as final causes.[129]

Think then of the necessary being as a limiting condition. We cannot make the statements of the usual form about the necessary being: these have combinations requiring matter for the glue and an external cause to do the gluing. Avicenna denies that the necessary being has a definition. Rather, as Avicenna's proof has it, the necessary being must be presupposed in order to explain the facts: that we have these rather than those possible beings existing, even when both are equally possible.[130]

In any case, the necessary being comes somehow to exist *in re* by necessity; through its causal agency some possible beings exist *in re* while others do not. Nevertheless, Avicenna can easily be thought to have a necessitarian, emanationist metaphysics: all thing flow from the intellectual, self-contained activity of the necessary being. After all, he says that possible beings emanate necessarily from it.[131] Yet this activity is hypothetical, given the causal activity of the necessary being:

> …there are two ways that something exists necessarily (*wājib*). One of them is to exist necessarily and through itself, while the other is to exist necessarily conditionally and through another.[132]

Like certain universal predications ('every swan is white'; 'stars move always'), the divine emanation holds always albeit not necessarily only because His activity and will do not change: motion is a feature only of the phenomenal objects that need to be caused by

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[129] Al-Ilāhiyyāt VIII.7.4 292,8; Wisnovsky, "Notes on Avicenna's Concept of Thingness," Arabic Sciences and Philosophy, p. 212.

[130] Thus Belo, Chance and Determinism in Avicenna and Averroes, p. 29, says, rather misleadingly: "…whatever is possible becomes necessary the moment it comes to exist. Possibility and actual existence are for him mutually exclusive terms."

[131] Al-Ilāhiyyāt IX.6.13 343,12.

[132] Al-Ṭabīʿa III.11.4 364,7-8 [trans. McGinnis]. Wisnovsky, Avicenna in Context, pp. 219-25; Kukkonen, "Causality and Cosmology," pp. 39-4.

something else.[133] After all, Avicenna recognizes possible beings that never do exist: like the heptagonal house. Given the activity and "decision" of the necessary being, the beings that in fact come to be are the only ones possible.[134]

Avicenna has a more restrictive conception of the causal agency of the necessary being than popular religion does. Like Aristotle he holds that it does think the quiddities in its intellect: "For He intellectually apprehends His essence and what His essence necessitates."[135] However, the necessary being has no knowledge of the singularities *in re*.[136] It has no intellectual apprehension of the changes of changing beings. Rather, it apprehends them abstracted from their matter.[137] All this seems to amount to the necessary being having only the quiddities in themselves in the divine intellect. (Avicenna does allow for their being individual essences like Socrateity—so his final position has complications.[138])

Conclusions

> Today, the real goal is…to understand…whether 'God could have made the universe in a different way, that is, whether the necessity of logical simplicity leaves any freedom at all.'[139]

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[133] Al-Ṭabīʿa III.11.5, 365,1-2; Al-Ilāhiyyāt VIII.6.9. Marmura, "Avicenna on Causal Priority," p. 70, notes that for Avicenna the cause may be a nature or a will.

[134] Al-Ilāhiyyāt IX.4.12, 331,1-2, says that the existence, and indeed the possibility of existence, follows from the intellectual activity of the necessary being. Is this a necessitarian emanation? Or is it only hypothetically necessary? Cf. 331,3 et passim: Marmura translates "necessarily follows from" but it is 'inseparable". This is like a *proprium* and not on the level of quiddities in themselves. Later on we do get *ḍarūrī* and *wājib* but not decisively.

[135] Al-Ilāhiyyāt VIII.7.2 291,16-7 [trans. Marmura].

[136] Al-Ilāhiyyāt VIII.6.14

[137] Al-Ilāhiyyāt 8.6.15.

[138] Michael E. Marmura, "Some Aspects of Avicenna's theory of God's knowledge of particulars," Journal of the American Oriental Society 82: 299-312 (1962), pp. 306-9.

[139] John Barrow, New Theories of Everything (Oxford, 2007), p. 10, quoting Einstein. He goes on, p. 36, to say that recent mathematical cosmology assumes that the laws of nature are prior to nature. "It

I hope, then, to have shown that the relation between modality and existence has central importance for Avicenna—and given a few pointers on how to understand the relation between his logical theory and his divine science.

Avicenna sees himself in a hermetic tradition, where the enlightened philosopher attains the truth by her own efforts, partly by intuition and partly by working out the hints of her enlightened predecessors. She too then might offer pointers. Avicenna does this with the works of Aristotle and al-Fārābī, the First and Second Teachers. In the logic, he clarifies under just what conditions the conversion rules of the Aristotelian syllogistic hold and the moods of the figures valid. So, on the one hand, he saves the phenomena of the tradition while on the other hand modifying or at least elaborating on its theory.[140]

Most scholars take Avicenna as a determinist, a neo-Platonist where all things follow by necessity from God, the necessary being.[141] The scholarship focuses on the metaphysics and physics with scant attention to the logic—to its peril. For, given his elaborate theory of the modalities and his insistence on two-sided possibility, clearly Avicenna allows for unactualized possibilities. As in his logic, contingency is central. Then the received picture has it wrong: Avicenna does not hold that everything possible follows necessarily from the necessary being.[142] To be sure, everything does follow necessari-

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must assume that there pre-exist laws of Nature and other primitive notions like logic prior to the creation of the Material Universe." "The Universe is one of its [Nature's laws'] particular manifestations. There may be others in potentiality or in actuality."

[140] This explains why Lagerlund thinks that Avicenna slavishly follows Aristotle's doctrines while Thom thinks that he radically disagrees with them.

[141] Goodman, Avicenna, p. 86, and Catarina Belo, Chance and Determinism in Avicenna and Averroes Brill Leiden 2007, pp. 14-5, review the literature. Among those who have determinist reading are: Marmura, "The Metaphysics of Efficient Causation," pp. 180; 185; Hourani, "Ibn Sina's Essay on the Secrets of Destiny," p. 36;; Gardet, La pensée religeuese d'Avicenne, 45-6; Goichon, La Distinction de l'Essence et de l'Existence d'après Ibn Sina, 162-3; R. Frank, Creation and the Cosmic System, 23-4. Those who have a more indeterminist reading include Ivry, 'Destiny revisited," 167, and Avicenna's Concept of Determinism," 160-71 in Islamic Philosophy and Theology, ed. M Marmura SUNY Albany 1984, p. 160; Jannssens, "The Problem of Human Freedom in Ibn Sina," PP. 112-8; Goodman, Avicenna, pp. 80-1.

[142] Al-Ilāhiyyāt IX.1.25. Can the necessary being create a world different from the actual one? Not

ly—but only hypothetically so, given the external cause, the choice of the necessary being. Avicenna states that the necessary being has free will.[143]Still as a necessary being does not change…its mind, the existence of possible beings is fixed permanently. Thus Avicenna says that the necessary being is necessary with respect to its own essence and not with respect to being the cause of the existence of Zayd.[144] Hence Zayd, a possible being, exists only contingently; his existence is hypothetically but not absolutely necessary. As with Leibniz, Avicenna has God choosing between possible worlds. Indeed this tradition continues on among Muslim theologians like those in Qom today.

It does not follow or not follow from what I have said that events in the world are free or determined. That issue concerns the physical modality, necessity in existence—and just what scope the volition of the necessary being has on individual events. I claim though that Avicenna is not a determinist metaphysically, with respect to logical modality and the quiddities in themselves. He does tend though to physical determinism: his science, including his medical research, inclines him denying radical contingency in the world.[145] Still he does admit to human frailty in constructing perfect demonstrations and has problems with unforeseen effects.[146] Avicenna is not a logical determinist; at best he tries to be a physical determinist when he says:

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too clear, but it seems that Avicenna does recognize unactualized possibilities here.

[143] Al-Ilāhiyyāt IX.2.12, 312,15-8; Al-Ishārāt 185,11-6, trans. Inati 63. Richard Frank, Creation and the Cosmic System, p. 49.

[144] Al-Ilāhiyyāt VIII.7.9 294,8-9; Al-'Ibāra 72,9ff.

[145] Belo, Chance and Determinism in Avicenna and Averroes, Ch. 1 and Goodman, Avicenna Routeledge 1992 London, pp. 66-7; 133 n.45, agree that Avicenna has radical contingency and hypothetical necessity Goodman calls it "causal determinism".

[146] Alfred Ivry, "Avicenna's Concept of Determinism," 160-71 in Islamic Philosophy and Theology, ed. M Marmura SUNY Albany 1984, pp. 165-6, says that for Avicenna god does not know "future states" of contingent beings. There are collisions giving rise to "unforeseeable effects", which, he notes n.25, raises a problem with prophecy. As he notes, pp. 168-9, given what Avicenna says about the sea battle, in Al-'Ibāra, Avicenna cannot establish predestination.

> When all matters are analyzed, [they are found] to rest on the principles that necessitate<s> them, descending from God.[147]

We can construe Hourani to be making this point when he speaks of "a complete determination of the world by God" and Ivry of "an order characterized by an all-enveloping causal necessity".[148] Jules Janssens has said about Avicenna's doctrines of radical contingency and divine determinism, "...I cannot see how these two opposite tendencies can be combined in a perfectly coherent manner."[149] This is how.

For Avicenna, possible beings are possible in themselves, in respect of the consistency of their definitions and the compossibility of their attributes. Being merely possible, they need an external cause determining them to exist or not to exist. The necessary being, God, causes possible beings to come to exist *in r*e. Still, the possibility of these contingent beings precedes, in some sort of conceptual or logical priority, and is independent of the power of the necessary being. Accordingly, possibility cannot be reduced to the powers or potencies of (actually existing) substances.

So then for Avicenna there "are" possible beings that do not exist. So he says:

> …before the existence of any nonexisting thing, it was something whose existence was possible. So the possibility of its existence existed before its existence.[150]

What sort of "being" does 'are' signify here? In Islamic philosophy, the key issue regarding the priority of essence *or* existence came to turn on the relation of God to the

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[147] Al-Ilāhiyyāt 362,19-363,1

[148] Hourani "Ibn Sina's Essay on the Secret of Destiny" p. 36; Alfred Ivry, "Avicenna's Concept of Determinism," 160-71 in Islamic Philosophy and Theology, ed. M Marmura SUNY Albany 1984, p. 160.

[149] Jules Janssens, "Creation and Emanation in Ibn Sina," Documenti e studi ...Medievavle, Florence, 1997 455-77 477, repr. Ibn Sina and his Influence on the Arabic and Latin World, Ashgate, Varirorium 2006 Aldershott. So too Frank Griffel, Al-Ghazālī's Philosophical Theology Oxford 2009, p. 139.

[150] Al-Ṭabīʿa III.11.1 359,7 [trans. McGinnis].

quiddities in themselves. God is the pre-eminent being: the necessarily existent. God causes all other beings to exist. Does then He cause there to "be" quiddities in themselves? If so, then existence—God's existence—precedes essence. Those essences strictly speaking are the quiddities in themselves. Or, must the quiddities in themselves be presupposed in order for God to think, will to create and act? Avicenna seems to say so.[151] Perhaps God causes the simple quiddities to combine, in acts of thought, and then to emanate into the world.

> Nor is it proper for any human to reveal knowledge that he possesses knowledge that he has concealed from the commonality…Rather, he should let them know of God's majesty and greatness through symbols and similitudes.[152]

[151] Al-Ilāhiyyāt 284,18-9 [trans. Murmura].
[152] Al-Ilāhiyyāt X.2.6 366,9-11 [trans. Murmura].

The *Rhetoric* and *Poetics* in the Islamic World

Uwe Vagelpohl

Introduction

> "The night before, two doubtful words had halted him at the beginning of the *Poetics*. These words were *tragedy* and *comedy*. He had encountered them years before in the third book of the *Rhetoric*; no one in the whole world of Islam could conjecture what they meant."

With these words, Jorge Luis Borges introduces the reader to the problem his protagonist, the Muslim philosopher Ibn Rušd (d. 1198), grapples with in his celebrated short story "Averroes's search": while composing his commentary on Aristotle's *Poetics*, he keeps encountering these two inexplicable terms. Ibn Rušd finally follows a hunch and writes that the former is Aristotle's term for "panegyrics," the latter for "satires and anathemas." One of the many ironies of Borges' story is the fact that in the short span of an afternoon and evening, while meditating on the meaning of tragedy and comedy, the solution stares him in the face twice: first, he observes children acting out a scene in the garden, and later, one of the guests at the evening's entertainment describes to his unbelieving audience a theatrical display he witnessed in far-away China.

Borges's account, while not entirely historically accurate, touches on a fundamental issue affecting the reception of the *Poetics* (and *Rhetoric*) in the Islamic world. In his words, "Averroes [...], closed within the orb of Islam, could never know the meaning of the terms tragedy and comedy." The story seems to question the ability of even the most accomplished scholar to understand concepts that have no counterpart in his or her own culture. Such concepts, comedy and tragedy among them, abound in the *Rhetoric* and especially the *Poetics*. What did translators, commentators, and Muslim scholars make of these two books?

Reception history

The basic facts of the translation and reception of the *Rhetoric* and *Poetics* in the Muslim world are by now reasonably well known. Before we return to the question posed above, let us briefly outline how these texts were translated into Arabic and assimilated into Islamic philosophy.

Between the eighth and the eleventh century, hundreds of Greek philosophical, scientific and medical texts were translated from Greek into Arabic; many such texts passed through the medium of Syriac. The extant Arabic translations of the *Rhetoric* and *Poetics* were produced at very different stages of this translation movement, one toward the beginning (the anonymous *Rhetoric*, translated sometime during the early years of the ninth century), the other relatively late (the *Poetics* by Abū Bišr Mattā, produced before 932). The crucial phase of the translation movement bookended by these two texts saw a marked improvement in translation techniques and terminology. At the same time, the availability of translations induced scholarly research that in turn generated demand for new translations and improved versions of older ones. The intellectual ferment inspiring and inspired by the work of translators and commentators was fed by much more than a set of written texts. Philosophical and scientific ideas found their way into the Islamic world through numerous routes, by way of written texts as well as oral exchanges between exponents of the many cultures and languages co-existing under the roof of the Islamic state.

Once the *Rhetoric* became available to Arabic-speaking scholars in the early ninth century, it gave rise to a remarkable range of commentaries and other writings. Although it never became as central a text in the Islamic Aristotelian tradition as some others, the contrast between the extensive and sustained Arabic commentary tradition and the virtual silence surrounding the *Rhetoric* in late antiquity is remarkable. As a handbook of oratory, it had been superseded by the technical writings of rhetorical specialists such as Hermogenes (fl. around 170) and Aphthonius (fl. in the late fourth century). Unmoored from its immediate political and social context, Aristotle's rhetorical theories became, together with the system of dialectics outlined in his *Topics*, part of the theoretical underpinnings of philosophical education: they provided methodologies of presenting or arguing for philosophical concepts.

As we will see below, the re-appraisal of the *Rhetoric* in late antiquity became a central

element of its reception in the Islamic philosophical tradition. Muslim philosophers took up the study of the *Rhetoric* with remarkable vigor. With the exception of al-Kindī (d. ca. 870), who apparently did not know the translation and generally evinced little interest in the subject, all of the major figures of Islamic philosophy wrote at least one substantial commentary and in most cases also at least one shorter text outlining their thinking on Aristotelian rhetoric and poetics.

As we will see below, there are two distinct textual strands in the reception of the *Rhetoric* and *Poetics*. They are exemplified by two different types of writings devoted to these works: the former, shorter type explains theoretical concepts, most importantly the role and place of the *Poetics* and *Rhetoric* in the Aristotelian *Organon*. It tends to dispense with direct references to the texts and follows a pattern of introductory treatises or *prooemia* on the *Organon* established in late antiquity. The latter, longer type consists of full-fledged commentaries aimed at explaining the text in some detail, quoting or closely paraphrasing it. These two types co-existed throughout the reception history of the *Rhetoric* and *Poetics*, influencing each other and sometimes merging.

Al-Fārābī (d. 950) summarized and interpreted the theoretical aspects of rhetoric, especially those relevant to logic, in his *Kitāb al-ḫaṭābah*, which formed part of a series of such *prooemia* devoted to individual parts of Aristotle's *Organon*. In addition, we know of a Long Commentary combining paraphrase and close phrase-by-phrase commenting. Its introduction and the sections discussing the first few lines of the *Rhetoric* survive in a thirteenth century Latin translation entitled *Didascalia in in Rethoricam Aristotilis ex glosa Alpharabii*, produced by Hermannus Alemannus. Thanks to the discoveries of Maroun Aouad, we now know a number of extensive quotations of the Arabic original embedded in a manual on logic compiled by the Cairene physician Ibn Riḍwān (d. 1061 or 1068), the *Kitāb fī l-mustaʿmal min al-manṭiq fī l-ʿulūm wa-l-ṣanāʾiʿ* (On what is used from logic in the sciences and arts).

Al-Fārābī's writings on logic exerted a strong influence on Ibn Sīnā, who discussed the subject matter of the *Rhetoric* in many of his works. Among others, he devoted substantial sections of two comprehensive surveys of Aristotelian philosophy, his early Ḥ*ikmah al-ʿarūḍīyah* (Philosophy for ʿArūḍī), also called *Kitāb al-maǧmūʿ* (The Compilation), and the later and more substantial *Kitāb al-šifāʾ*, to rhetoric. Both these sections are part of a wider

discussion of the logical teachings of Aristotle's *Organon*. The former only covers part of the *Rhetoric*: in one chapter, Ibn Sīnā summarized the contents of Book 1 (excluding the last chapter), in another, he discussed those chapters of Book 2 that describe the passions orators aroused in their audience. The *Šifāʾ* takes on the entirety of the *Rhetoric*, but offers a "running exposition [...] as reconstructed according to his own opinion" rather than reverting to the format of close commentary employed by his predecessors. Its introduction, itself an example for the still ongoing tradition of *prooemia*, illustrates how the high-level conceptual outline of a *prooemium* seeking to explain the place of the *Rhetoric* and *Poetics* in the *Organon* could be merged with the more detailed exegetical paraphrase Ibn Sīnā offered in the sections of the *Šifāʾ* devoted to individual works of the *Organon*.

Ibn Rušd (d. 1198) also engaged with the *Rhetoric* during different phases of his life. In an earlier text, known as the *Ǧawāmiʿ* (Short Commentary) on the *Rhetoric*, he concentrated on theoretical principles of logic he extracted from the book; the text formed part of a series of more theoretically oriented *prooemia* on individual works of the *Organon*. Ibn Rušd focussed in particular on the second chapter of Book 1, the same chapter al-Fārābī studied in his *Kitāb al-ḫaṭābah*, which also belonged to the *prooemium* tradition. The "Fārābian" interpretation Ibn Rušd offered and the similarity in structure and content of the two texts illustrate how close his thinking was to that of his illustrious predecessor. Almost twenty years later, he wrote a Middle Commentary on the *Rhetoric* that illustrated how his thinking had shifted away from the Arabic commentary tradition and explicitly emphasized the Aristotelian text itself while downplaying the elaborate interpretations of his precursors.

The authors and writings surveyed above are the most prominent exponents of a tradition of commenting on and writing about the *Rhetoric* that stretched from the tenth to the thirteenth century and beyond. Latin translations, e.g. of parts of al-Fārābī's Long Commentary (the *Didascalia* mentioned above) and Ibn Rušd's Middle Commentray, transmitted the interpretations developed in the Islamic philosophical tradition to Latin-writing scholars. Their influence can be traced to the Renaissance and beyond.

The reception of Aristotle's *Poetics* followed a similar, but slightly different trajectory. The first prominent author to take up its study after it had been translated into Arabic was,

again, al-Fārābī. He did not, however, embark on a full-scale commentary, but selectively presented issues raised by the *Poetics* that he considered relevant to logic in two texts that firmly follow the form of *prooemia*. In his *Risālah fi qawānīn al-šiʿr* (Epistle on the Canons of Poetry), al-Fārābī elaborated on the notion of "poetic statements" (*aqāwīl šiʿrīyah*), the role of imitation and poetry in logic, types of poetry and poets and characteristics of poetic analogy. The closest al-Fārābī came to defining poetry is to state that "poetic statements" are syllogistic, even though they are neither demonstrative, argumentative, rhetorical or sophistical. This and other notions developed in the *Qawānīn* represent a curious mix between material gleaned from the translation of the *Poetics* and secondary information possibly derived indirectly from the late antique tradition of introductory and exegetical writings. In addition, al-Fārābī wrote another short treatise on the subject matter, the *Kitāb al-šiʿr* (On poetry). Based in part on the first three chapters of the *Poetics*, its four parts consider rhyme and rhythm in Arabic poetry, explain the difference between rhetoric and poetry, describe the relationship between *muḥākāt* (imitation) and *taḫyīl* (evocation of images) and conclude with an assessment of the distance between original and imitation. It forms part of the same series of introductory writings that included his *Kitāb al-ḫaṭābah*, but, as the outline above demonstrates, steps away somewhat from the more logical concerns of the latter.

Echoes of the *Qawānīn* figure prominently in Ibn Sīnā's thought about the *Poetics*. Like the *Rhetoric*, he commented on the text in the *Ḥikmah al-ʿarūḍīyah* and the *Šifā'*. The former largely presents a shortened version of many of the same ideas spelled out in greater detail in the latter. Like the section on the *Rhetoric*, the latter offers an extended exposition of Ibn Sīnā's thought on the contents and purpose of the *Poetics* rather than a commentary, preceded by an introduction that draws on the *prooemia* tradition. With al-Fārābī, he emphasised the notion that poetical utterances can be analysed logically, but rejected his claim that poetical syllogisms necessarily be false.

Ibn Rušd's Short Commentary (*ǧawāmiʿ*) on the *Poetics*, less than two printed pages of text, recounts many important interpretive *topoi* presented by al-Fārābī and Ibn Sīnā, putting particular emphasis on *taḫyīl* (the evocation of images in the minds of listeners). Typical for such an introductory text, Ibn Rušd raised the issue of the place of the *Poetics* in the *Organon*

and maintained that it belonged to the "syllogistic arts" (*ṣināʿah qiyāsīyah*), but that it does not operate with actual (or explicit, *bi-l-fiʿl*) syllogisms. This idea reproduces al-Fārābī's distinction between actual (*bi-l-fiʿl*) and potential (or implicit; *bi-l-quwwah*) syllogisms, among which he subsumed poetic devices such as simile or analogy (*tamṯīl*) and induction (*istiqrāʾ*). By the time he wrote his Middle Commentary on the *Poetics*, Ibn Rušd's thinking had undergone a shift similar to the one we observed in the case of the *Rhetoric*: he had shed some of the doctrines introduced by al-Fārābī and Ibn Sīnā and attempted to re-align his interpretation with what he thought were Aristotle's original intentions. For one, more than his predecessors, Ibn Rušd attempted to apply Aristotle's *Poetics* to Arabic poetry. According to his Middle Commentary, the distinguishing mark of poetics is that it is an art "not based on argumentation and discussion," but *mimesis*, aspects of which he labelled *tašbīh/tamṯīl* (comparison) and *muḥākāh/taḫyīl* (artistic imitation/evocation of images); this seems to be a key difference to (philosophical) rhetoric.

Ibn Rušd's enormous achievement marked the high point of Muslim philosophical engagement with the *Rhetoric* and the *Poetics*, but it did not end with him. Before and after Ibn Rušd, other philosophers, including some of his own students and their students in turn, wrote mainly introductory texts on logic and its various disciplines, including rhetoric and poetics. Of the common themes of Muslim philosophical rhetoric and poetics, both its logical bent and its dissociation from traditional Arabic poetical and rhetorical thought persisted. In the prologue to his *Maḫal li-ṣināʿat al-manṭiq* (Introduction to the art of logic), Ibn Rušd's student Ibn Ṭumlūs (d. 1223) introduced a division of the sciences squarely based on al-Fārābī's *Iḥṣāʾ al-ʿulūm* (Enumeration of the Sciences). In it, he classified "oratory" (*al-ḫuṭab*) as a "propaedeutic science" among the "sciences of the Arabic language" (together with lexicography, poetics and related fields, e.g. metrics). Logic on the other hand (including Aristotelian rhetoric and poetics) was part of the "ancient" or "universal" sciences.

Even though the Arabic translations of both texts gave rise to numerous commentaries and other writings, their impact remained limited. Nearly all of these writings originated with and

circulated among scholars of Muslim philosophy: Aristotle's *Rhetoric* and *Poetics* were relegated to "philosophical" poetics and rhetoric. Except for polemical purposes, few writers outside this field seriously engaged with Aristotelian poetics and rhetoric or attempted to apply these theoretical frameworks to Arabic rhetorical and poetic genres, either in spite or perhaps because of the fact that Arabic literature offered a highly developed rhetorical and poetical tradition of its own.

The approach to literary criticism developed in the *Kitāb naqd al-šiʿr* (Assaying of poetry) by Qudāmah ibn Ǧaʿfar (d. 948?), a close contemporary of al-Fārābī, exemplifies the diffuse influence of Aristotelian logic on the methodology of literary criticism. While mainly indebted to the preceding tradition of Arabic literary criticism, Ibn Qudāmah's systematic analysis of poetry also echoes ideas from of Aristotle's *Rhetoric*. The first literary scholar (writing outside the confines of philosophical scholarship) seriously attempting to apply Aristotle's poetical theory to Arabic poetry, particularly his concepts of *mimesis* (*muḥākāh*) and evocation of images (*taḫyīl*), seems to have been Ḥāzim al-Qarṭaǧannī (d. 1285). His importance rests on the fact that he was also the first eminent literary critic with comprehensive philosophical training and the first to have attempted to meld traditional Arabic literary theory and Greek philosophical poetics. Interestingly, in spite of his chronological and geographical proximity to Ibn Rušd, al-Qarṭaǧannī only explicitly refers to the writings of Ibn Sīnā.

Traces of formal elements associated with Greek rhetorical learning have also been identified in Arabic literary works, e.g. the Arabian Nights or the descriptions of cities in a number of different texts including al-Ḥarīrī's (d. 1122) celebrated *Maqāmāt* (Sessions). The work of Arabic translators may also have been influenced by Greek rhetorical conventions.

But for each scholar who embraced the Greek legacy made available by the Greek-Arabic translation movement, there were several who vigorously debated its usefulness or even rejected it out of hand. The more specific criticism of Greek poetics and rhetoric was part of and often blended into a broader critical attitude toward Greek logic and the translation of Greek literature in general, expressed not only by exponents of "traditional" Arabic disciplines such as Arabic theology and grammar, but also by bellettrists such as al-Ǧāḥiẓ (d. 868), who was deeply influenced by Greek philosophy and science. In a much-quoted passage of his *Kitāb al-*

ḥ*ayawān* (Book of Animals), he remarked on the impossibility of translating Arabic poetry and went on to present a catalogue of qualifications required of a translator seriously striving to convey the meaning of a non-Arabic text to an Arabic-speaking audience. None of the translators he was familiar with met this high standard. Paired with his insistence on the inadvisability even to attempt to translate scripture, the impression al-Ǧaḥiẓ leaves is that of an inveterate opponent of translation in general and Greek-Arabic translation in particular. In the same book, he thoroughly rubbishes the Arabic translation of Aristotle's *Meteorology*, accusing the translators of "inventions" and "ignorance." But his well-known reliance on the output of the Greek-Arabic translation movement suggests that these and other passages are perhaps better understood as partly ironic, prompted by the frustration of an accomplished Arabic stylist with translations of often inferior quality, produced by mostly Christian translators and native speakers of Syriac whose grasp of the Arabic language was sometimes imperfect at best.

The same applies to the equally well-known debate between the grammarian Abū Saʿīd al-Sīrāfī (d. 979) and the logician (and our translator of Aristotle's *Poetics*) Abū Bišr on the relative merits of logic and Arabic grammar, reported in Abū Ḥayyān al-Tawḥīdī's (d. 1023) *Kitāb al-imtāʿ wa-l-muʾānasah* (Book of Enjoyment and Conviviality). Challenged by an experienced and well-regarded exponent of the "classical" Arabic sciences, Abū Bišr fails miserably to defend the universality (and therefore relevance) of Aristotelian logic. Even though this "debate" should not be read as a faithful protocol of an actual exchange between these two scholars, it illustrates the depth and fierceness of opposition against Greek thought among a substantial cross-section of Muslim scholars.

The inadequacy of the rhetorical and poetical theories expounded by the commentators on the basis of the Arabic translations of the *Rhetoric* and *Poetics* was also keenly felt by those they could have appealed to most: scholars of literature. At the beginning of his *al-Maṯal al-sāʾir* (The Current Proverb), Ḍiyāʾ al-Dīn ibn al-Aṯīr (d. 1239) mounted a vigorous attack on the relevance of Greek poetics for creators and critics of Arabic poetry. Ibn Sīnā in particular came in for harsh criticism; Ibn al-Aṯīr pronounced everything he said about Aristotle's *Rhetoric* and *Poetics*, especially the link between poetry and logic, "totally useless for any

Arabic-speaking person."

A reception "framework"

The commentaries and secondary texts discussing Aristotle's *Poetics* and *Rhetoric* all share a number of assumptions and interpretive motifs, e.g. the connection between rhetoric, poetics and logic and the interpretation of realia such as tragedy and comedy, all of which represent elements of an interpretive framework that differs in key aspects from that of Aristotle's immediate audience. They appear in different configurations throughout the reception history of the two works. In addition, they were independent of the translations: we find several of them in texts that clearly antedate the Arabic translations themselves.

A case in point is the Arabic reception of the *Poetics*, which started even before the text itself was translated, possibly under the influence of a lost late antique summary of the *Organon*. In his *Risālah fī kammīyat kutub Arisṭāṭālīs* (Epistle on the Number of Aristotle's Books), the philosopher al-Kindī reported that the *Poetics*, the ninth part of the *Organon*, discusses "the art of poetry [treating] of words and what metric is used in every species of poem, such as the poem-of-praise and the poem-of-mourning and the poem-of-denunciation and others." Besides providing evidence for at least a limited amount of information about the *Poetics* antedating its translation, the *Risālah* also demonstrates that certain elements of the interpretive framework that influenced the translation and commentary tradition of this work and the *Rhetoric* had also put down roots at a relatively early time.

Of these elements, we find two in this short treatise: firstly, the classification of both *Rhetoric* and *Poetics* as parts of Aristotle's *Organon*—toward the beginning of his epistle, al-Kindī introduced both as the seventh and eighth part respectively of what he termed *al-manṭiqīyāt*, the "logical" works. Secondly, in his description of the contents of the *Poetics*, al-Kindī already referred to the distinction of poetic genres into "eulogy" and "satire," i.e. the very same rendering of the terms "tragedy" and "comedy" we find in Abū Bišr's translation and in subsequent commentaries. While this is not a classification Aristotle himself proposed, it echoes his description of the earliest forms of poetic expression alluded to in Chapter 4 of the

Poetics.

Were these elements of the late antique interpretive framework also present in the Syriac translations? As suggested above, many, mostly early translations were made directly from a Greek source, others were based on a Syriac intermediary. While this is not assured in the case of the *Rhetoric*, Abū Bišr's Arabic *Poetics* was in fact translated from a Syriac version produced in the early tenth century, possibly by Isḥāq ibn Ḥunayn (d. ca. 910), the son of the famous translator Ḥunayn ibn Isḥāq (d. ca. 873). The only extant fragment of this Syriac version, quoted in a thirteenth-century scientific compendium entitled *Ktābā d-Diyālogō* (Book of Dialogues) by the West-Syrian scholar Jacob bar Šakko (d. 1241), is too short to draw far-ranging conclusions about the presence of the above-mentioned elements. For one, it sidesteps the problem of translating "tragedy" by simply transliterating it, a strategy we observe in many Syriac and also a number of Arabic translations, mainly those produced during earlier stages of the translation movement.

The Arabic translation of the *Rhetoric* uses both terms sparingly, we find two occurrences each of κωμῳδία and τραγῳδία. Each time, the translator chose to transliterate as *qūmūdīyah* and *ṭrāġūdīyah*, respectively, rather than translate. His translation for the related term κωμῳδοποιός (comic poet) shows that he did not resort to transliteration exclusively: he rendered it as *ḏākirī l-masāwi'* (those who tell about evil deeds/shortcomings) on the first occasion. On the second, he reverted to transcription and called them *allaḏīna yaṣnaʿūna l-qūmūdīyāt* (those who produce comedies).

Unsurprisingly, κωμῳδία and τραγῳδία appear rather more frequently in the *Poetics*. The former is mentioned about thirty times, the latter more than a hundred. In a representative example toward the beginning of the book, Aristotle pinpoints the difference between comedy and tragedy:

> ἐν αὐτῇ δὲ τῇ διαφορᾷ καὶ ἡ τραγῳδία πρὸς τὴν κωμῳδίαν διέστηκεν· ἡ μὲν γὰρ χείρους ἡ δὲ βελτίους μιμεῖσθαι βούλεται τῶν νῦν. (1448a16–18)
>
> This very distinction separates tragedy from comedy: the latter tends to represent

people inferior, the former superior, to existing humans. (Halliwell 1995, 35)

Abū Bišr Mattā translates as follows:

> *wa-bi-hāḏā l-faṣli bi-ʿayni-hi l-ḫilāfu llaḏī li-l-madīḥi ʿinda l-hiǧāʾi wa-huwa anna-hu ammā tilka fa-bi-l-arāḏīli [wa-]ammā hāḏihī fa-kānat tušbihu bi-l-aḫyāri wa-īyā-hum kānat tuḥākī*.
>
> Exactly this division constitutes the difference between eulogy and satire: that the latter emulates more contemptible [people] and the former superior [people] and represents them.

The key terms in this rendering are almost identical to those used by al-Kindī: *madīḥ* (eulogy) for tragedy and *hiǧāʾ* (satire) for comedy. Even though Abū Bišr continues to rely on transliterations for other important terms in the *Poetics*, e.g. (*ṣināʿat al-*)*afī* (ἐποποιία, epic poetry) and *drāmāṭā* (δράματα, theatrical performances), he consistently renders κωμῳδία and τραγῳδία as *hiǧāʾ* and *madīḥ*.

Our lack of additional Syriac sources does not allow us to follow the eulogy/satire or, more generally, praise/blame distinction further back than al-Kindī's short sketch. The philosopher may have attempted to "accommodate" the alien Greek poetic genres by transposing them into categories familiar to his Arabic-speaking audience. The ultimate inspiration, however, must have come from a lost Arabic secondary text or a translation of a late antique summary of the *Organon* that supplied either the terms themselves or at least described the contents of the *Poetics* in a way that suggested *hiǧāʾ* and *madīḥ* as appropriate equivalents for κωμῳδία and τραγῳδία. It is difficult to imagine that al-Kindī, himself unable to read Greek or Syriac, came up with these terms all by himself.

The connection between rhetoric and poetics on the one hand and logic on the other is both more prominent and better documented than the evolution of the praise/blame motif.

Grouping the *Poetics* and *Rhetoric* with Aristotle's logical writings may not have been uncontroversial—late antique commentators did not have an easy time justifying this to us somewhat counterintuitive idea—but was, in spite of these debates, taken for granted by Muslim writers. The Neoplatonist Elias (fl. ca. 550) presented a classification of Aristotle's works that anticipated the structure of the most well-known Arabic classification outlined in al-Fārābī's *Iḥṣāʾ al-ʿulūm*. This short work, translated into Latin under the title *De scientiis*, first by John of Seville (fl. eleventh century) and then by Gerard of Cremona (d. 1187), became an important transmitter of the notion of the "logical" character of the *Rhetoric* and *Poetics* to the Latin West.

The writings of Paul the Persian, a Nestorian theologian and philosopher active at the Persian court of Ḫusrau Anūširwān (r. 531-78), illustrate how this classification quickly crossed cultural and linguistic boundaries. In an otherwise lost introduction to the works of Aristotle, quoted at length (in Arabic) by the Persian philosopher and historian Miskawayh (d. 1030) in his *Tartīb al-saʿādāt* (The Arrangement of Happiness), Paul correlates five kinds of syllogisms with five different parts of the *Organon*, the *Rhetoric* and *Poetics* among them. His system largely parallels that of Elias and is in turn—with minor modifications—mirrored by that of al-Fārābī.

Of the *Poetics* and the *Rhetoric*, the latter seems a better fit for the "extended" *Organon*. The book itself suggests links to other parts of the *Organon* that facilitated its eventual subsumption among the logical subdisciplines. After proposing that rhetoric is an ἀντίστροφος (counterpart) of dialectics at the very beginning of Book 1, Aristotle elaborated on the meaning of this statement in the second section of the same book (1355a3-14). Since dialectics, to which Aristotle devoted his *Topics* (a text the *Rhetoric* refers to on a number of occasions), is a branch of logic, rhetoric must also form part of it. References to other logical texts only confirmed the applicability of the late antique interpretive framework the translator and later scholars worked with. The *Poetics* did not offer such obvious support, but Arabic scholars took its logical relevance for granted even before the text itself was translated. Needless to say, the translator played as important a role in pinpointing the presumed logical content in Aristotle's *Poetics* as the commentators who took up his text.

Even without the impact of such large-scale interpretive assumptions that influenced translators and commentators alike, the reception of the *Rhetoric* and especially the *Poetics* would have remained problematic: conveying Aristotle's discussions of literary, rhetorical, social and political phenomena relevant to his fourth-century BC audience across the intervening linguistic, chronological and cultural barriers to a ninth- and tenth-century Muslim audience went beyond the abilities of even the most gifted translator. Still, convinced of the importance and validity of Aristotle's writings, whatever the subject, translators felt compelled to translate these texts they were virtually bound to misunderstand. It was this hybrid text, replete with misunderstandings and seemingly idiosyncratic interpretations, that became the source for subsequent interpreters.

Muslim commentators took these already imperfect translations and sought to square them with their understanding of the position of the *Rhetoric* and *Poetics* among the works of Aristotle and their knowledge of Aristotelian philosophy and ancient Greek culture. The result was a rich and creative tradition of Arabic philosophical writings devoted to the task of solving the mysteries of these texts. By emphasizing different notions suggested by or alluded to in the text or the commentary tradition as known to them, each of the main commentators arrived at their own individual readings. In the process of translation and commenting, even misunderstandings became the occasion for acute insights in fields as varied as psychology, political philosophy, aesthetics and philosophy of religion. Given the creative potential of this highly fascinating process, it would be short-sighted simply to stress its problematic aspects and dismiss the results as a massive misunderstanding. On the contrary, considering the ingenuity of the commentators and their creative responses to concepts that inevitably remained elusive, the translation and appropriation of these two works can be understood as an instance of transcultural transformation of knowledge. After the translation stage, scholars and commentators elaborated on these texts and applied its supposed teachings e.g. to political philosophy (*Rhetoric*, al-Fārābī), the philosophy of religion (*Poetics* and *Rhetoric*, al-Fārābī), ethics (*Poetics* and *Rhetoric*, Ibn Sīnā and Ibn Rušd) or logic (*Rhetoric* and *Poetics*, al-Fārābī, Ibn Sīnā and Ibn Rušd).

These circumstances require that any assessment of the interpretive efforts of Muslim

scholars needs to remain aware of the fact that the commentators were operating in a "closed system"—after the translation stage, none of them was able to consult the Greek text. Their only guide for their reading of the *Rhetoric* and *Poetics* were the translations themselves, a certain amount of second-hand information derived from late antique sources and, as time progressed, the various Arabic commentaries on and elaborations of these two books. As Dimitri Gutas wrote about Ibn Rušd, "[h]is understanding . . . was circumscribed objectively by the semantic and ideational range of the Arabic translation in front of him and of whatever commentaries were available to him."

Returning to "Averroes's Search," we find that Borges not only posed the problem of translatability, he also stressed the centrality of the context of texts and utterances—e.g. the available interpretive "framework"—for their interpretation and translation. At the evening's entertainment Borges's fictionalized Ibn Rušd attends, he defends the value of metaphorical speech and explains how, in the course of time, the interpretation of poetry becomes more complex: at the time of its creation, a metaphor devised by a poet only links two images his audience were immediately familiar with. Several centuries later, Ibn Rušd and his companions read the same metaphor in the context of their own lives and that of intervening historical events: the two images now also evoke the memory of its creator and seem to speak to the misfortunes of contemporary readers. He concludes: "The figure had two terms then and now it has four. Time broadens the scope of verses and I know of some which, like music, are everything for all men." In a similar process, the simple relation between comedy and tragedy on the one hand and their understanding by Aristotle's audience on the other was supplemented at every step of the reception; equally, additional strands were woven into the thread connecting Aristotle's *Poetics* and *Rhetoric* and its readers at various times while other strands frayed and ultimately snapped.

Al-Fārābī's Commentary on Aristotle's *Rhetoric* in the *Didascalia*[1]

Frederique Woerther

The identity of the *Didascalia* was the subject of prolonged debate after A. Jourdain discovered the only manuscript known to contain them (BnF Lat. 16097)[2], at the end of the nineteenth century.[3] Today, however, it is accepted wisdom that the *Didascalia*[4] constitutes the Latin translation of the prologue of al-Fārābī's *Long Commentary* (a work that has been lost in Arabic) on Aristotle's *Rhetoric* completed in the thirteenth century at Toledo by Hermann the German [5] Without entering into excessive detail, we can organize the evidence for this view into three categories:

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[1] This text owes much to M. Aouad's work on the *Didascalia*, which I will mention in notes throughout this essay.

[2] The Didascalia was for a long time believed to be Hermann the German's summary of a treatise written by al-Fārābī on Aristotle's *Rhetoric*. See M. Steinschneider, *Die arabischen Übersetzungen aus dem Griechischen* (1889, and Graz: Akademische Druck-U. Verlagsanstalt, 1960), [p.87]; A. Nagy, "Notizie intorno alla retorica d'al-Fārābī," *Rendiconti della Academia dei lincei 5* (1893), p. 684-691). Only G. Lacombe mentions, for the first time in 1939, the *Didascalia* as an authentic work of al-Fārābī (G. Lacombe et al., *Aristoteles Latinus*, 1 (Rome: A. Birkenmajer, M. Dulong, A. Franceschini, 1939), p. 102, n. 3).

[3] A. Jourdain, *Recherches critiques sur l'âge et l'origine des traductions latines d'Aristote et les commentaires grecs ou arabes employés par les docteurs scolastiques* (New York : Burt Franklin Bibliographical Series, 1843), p. 145, n. 1.

[4] The Didascalia was edited by M. Grignaschi in 1971 (Al- Fārābī, *Deux ouvrages inédits sur la Réthorique*, 2. *Didascalia in Rethoricam Aristotelis ex glosa Alpharabii*, M. Grignaschi (éd.) (Beyrouth: Dar el-Machreq, 1971) (=*FDG*), p. 123-252). A new edition of this text, accompanied by a new French translation and a commentary has been completed in collaboration with M. Aouad and will be published soon. The Latin text and the French translation used in the original version of this article are taken from this work.

[5] On Hermann the German and his translations, see notably: G.H. Luquet, "Hermann the German († 1272)," *Revue de l'Histoire des Religions* 44 (1901), p. 407-422; W.F. Boggess, *Averrois Cordubensis Commentarium Medium in Aristotelis Poetriam*, Ph.D., University of North Carolina, Chapel Hill, 1965, p. XVI-XXI; J. Ferreiro Alemparte, "Hermann el alemán, traductor del siglo XIII en Toledo," *Hispania Sacra* 35 (1983), p. 9-56; M. Pérez González, "Hermann el Alemán, traductor de la Escuela de Toledo," *Anales Toledanos* 29 (1992), p. 17-28; R. Gonzalvez Ruiz, "El traductor Hermann el Alemán," in A.M. Lopez-Alvarez et *al*. (ed.), *La*

1. Bio-bibliographical sources which attest to the existence of al-Fārābī's *Long Commentary* on Aristotle's *Rhetoric*.[6]

2. Textual evidence. In his *Middle Commentary*, Averroes (1126-1198) explicitly attributed certain passages to al-Fārābī that are probably taken from his *Long Commentary*. In his Latin translation of the Arabic version of Aristotle's *Rhetoric*, Hermann the German refers several times to a *Long Commentary* written by al-Fārābī.

3. Finally, M. Aouad has shown that Ibn Ridwan (988-ca. 1061), the author of the *Book On What Is Used In Logic, Science, And The Arts*, knew the *Long Commentary* and makes use of passages found in the Latin translation of the *Didascalia*.[7]

Here we will attempt to understand al-Fārābī's activity as a commentator, notably by describing the influence of the Alexandrian School and observing how the *Didascalia* reinterprets the means of persuasion in Aristotle's *Rhetoric* in light of a new historical, political, philosophical and religious context.

Generally speaking, Aristotle's *Rhetoric* enjoyed a privileged position in the eastern tradition. Along with the *Poetics*, it formed part of the Aristotelian *Organon* in the "enlarged"[8] version adopted by Neo-Platonic philosophers as early as the fifth century and was used in their pedagogy as a propaedeutic to the study of Plato's dialogues. Later these logical treatises began to be translated into Syriac to respond to the needs of monastic schools. Philosophy, reduced to logic (but including *Rhetoric* and *Poetics*), was considered an instrument for the exegesis of

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Escuela de Traductores de Toledo (Toledo: Disputación Provincial de Toledo, 1996), p. 51-64 and R. Gonzalvez Ruiz, *Hombres y libros de Toledo, 1086-1300* (Madrid: 1997), p. 586-602.

[6] The details of this argument will appear in our forthcoming edition of the *Didascalia*.

[7] Cf. M. Aouad, "La doctrine d'Ibn Ridwān et la *Didascalia in Rethoricam Aristotelis ex glosa Alpharabii*," *Arabic Sciences and Philosophy. A Historical Journal* 7 (1997), p. 163-245 and the follow-up to this contribution in *Arabic Sciences and Philosophy. A Historical Journal* 8 (1998), p. 131-160; "Le texte arabe du chapitre sur la rhétorique d'Ibn Ridwān et ses correspondants dans la *Didascalia in Rethoricam Aristotelis ex glosa Alpharabii* : fragments du Grand commentaire à la *Rhétorique* d'al-Fārābī," in I. Rosier-Catach, G. Dahan (ed.), La "*Rhétorique*" *d'Aristote : Traditions et Commentaires, de l'Antiquité au XVIIe siècle* (Paris : Vrin, 1998), p. 169-225.

[8] On the presence of Aristotle's *Rhetoric* and *Poetics* in the eastern tradition's *Organon*, cf. D. Black, *Logic and Aristotle's "Rhetoric" and "Poetics" in Medieval Arabic Philosophy* (Leiden: Brill, 1990).

Church Fathers and the fight against heresies. Finally, in the eighth and ninth centuries, the Abbasids launched a cultural-political movement on a massive scale: the translation into Arabic of Greek scientific and philosophical texts.[9] All signs, however, point to the conclusion that the Arabic translation of Aristotle's *Rhetoric*—which we still possess and represents the version of the text on which the three great commentators al-Fārābī, Avicenna, and Averroes worked-precedes the vast "translation movement."[10] Often obscure and containing numerous errors, the Arabic translation itself was very likely produced from a Syriac intermediary.

1. Inscribing al-Fārābī in the Alexandrian tradition

It was in a strongly Hellenized context that al-Fārābī undertook in the tenth century his commentary on Aristotle's *Rhetoric*. The influence of the eastern tradition is visible in the *Didascalia* on at least two levels. This tradition was to be inherited by Abū Bišr Mattā and the Nestorian Christian Yuḥannā Ibn Ḥaylān, with whom he studied logic at Baghdad.

1.1 The Structure of the *Didascalia*

A study of the *Didascalia*'s structure indicates, first of all, that al-Fārābī borrowed the structure of his prologues from the Alexandrian School, a fact that he announces in §2: "We will therefore begin the commentary on this book with those themes that are usually explained in such prologues. There are eight: the aim (*intentio*) of the book, the agreement between the book's title and its aim (*convenientia tituli libri cum ipsius intentione*), the sections (*partes*) of the book, the usefulness (*utilitas*) of what is in it, its filiation (*proportio sive comparatio*), its

[9] Cf. D. Gutas, *Greek Thought, Arabic Culture*. *The Graeco-Arabic Translation Movement in Baghdad and Early 'Abbāsid Society, 2nd-4th/8th-10th Centuries* (London, New York: Routledge, 1998) and the first two chapters of G. Saliba, *Arabic Science and the Making of the European Renaissance* (Cambridge, London: The MIT Press, 2007).

[10] Cf. M. Aouad, "Aristote. La. *Rhétorique*. Tradition syriaque et arabe," in R. Goulet (ed.), *Dictionnaire des Philosophes Antiques,* vol. I, (Paris: Éditions du CNRS, 1989), p. 455-472 and *Supplément* (Paris: Éditions du CNRS, 2003), p. 210-223.

rank (*ordinatio*), the mode of instruction (*modus doctrine*) used to progress through the subject matter, and the identity of the author (*auctor ipsius*)."[11]

Before going directly to the first theme, however, al-Fārābī lays out the different kinds of beliefs (*creditiones*) in order to define the concept of persuasion that will be the fundamental element of the definition of rhetoric (§3-12).[12] In the paragraphs dedicated to the aim (*intentio*) of the *Rhetoric*, al-Fārābī mentions 1) incomplete definitions of rhetoric, described as the art that concerns particulars and aims at pleasant persuasion, 2) the three types of listeners, 3) the three genres of discourse, and 4) necessary rhetoric and complete rhetoric,[13] the latter of which takes its propositions from the same sources as necessary rhetoric, as well as from ethics and politics. The agreement of the title of the book with its aim (*convenientia tituli libri cum ipsius intentione*) is discussed in §§31-33. §§34-36 deal with rhetoric's filiation (*proportio*) and claims that rhetoric's *habitus* does not fall within the domain of logic. It is rather the science of the operations intrinsic to this *habitus* that belong there. Here al-Fārābī also states that rhetoric is connected to logic by means of enthymemes and examples. The place (*ordinatio*) of the *Rhetoric* in the series of Aristotle's logical treatises is addressed in §37 when al-Fārābī distinguishes the *Prior Analytics*, the *Topics*, and the *Sophistical Refutations* on one hand, texts that are instructive for those who work on the sciences, and the *Rhetoric* and the *Poetics* on the other, texts directed toward the well being of the many. The latter type of text presents the tools of persuasive discourse that are indispensible for philosophers when they need to communicate scientific

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[11] *Didasc*., §2.
[12] Cf. *infra*, "La réinterprétation des moyens de persuasion aristotéliciens dans les *Didascalia*."
[13] On these two notions, cf. M. Aouad, "Rhétorique aristotélicienne (*rethorica*) et faculté oratoire (*oratoria*/*balāgha*) selon les *Didascalia* in '*Rethoricam*' (sic!) *Aristotelis ex glosa Alpharabii*," in B. Gruendler (éd.), *Classical Arabic Humanities in Their Own Terms: Festschrift for Wolfhart Heinrichs on his 65th Birthday Presented by his Students and His Colleagues* (Leiden: Brill, 2007), p. 40-61.

knowledge to those incapable of following logical argumentation. The *Rhetoric*'s sections (*partes*) are enumerated in §§39-56, where al-Fārābī lays out a comprehensive survey of the large sections of the treatise (§§39-41) and the small sections, or chapters (§§42-56). Al-Fārābī mentions the usefulness (*utilitas*) of the *Rhetoric* and its mode of instruction (*modus doctrine*)—here Aristotle most often uses the method of division and analysis—in §57. Then the commentary proper on Aristotle's text begins (and is interrupted) in §58 with a citation from the text followed by its gloss.

This method, which successively deals with the aforementioned eight themes before beginning a commentary on a philosophical text, is borrowed from the Alexandrian tradition. The Canon of Proclus, introduced in the fifth century by the commentator of the same name, established rules for writing a prologue. He emphasized that six themes must be addressed before being able to proceed to a reading of a text: 1) aim, 2) usefulness, 3) title, 4) sections, 5) authenticity and 6) the place of the work in a series of treatises. In the first half of the sixth century, Ammonius divided the last theme in two: the part of philosophy to which the treatise belongs, and its position in this field. A bit later, in the second half of the sixth century, Elias and David, who worked in the tradition of Ammonius and were the first to write prologues of the eight themes, added a paragraph on pedagogy in their introduction to Porphyry's *Isagoge*, which was absent in their predecessors' works.[14]

A closer examination of the *Didascalia* raises two points. First, of the eight themes announced in §2, all subsequently become the object of study except one: the authenticity of the

[14] Cf. F.W. Zimmermann, *Al-Fārābī's commentary and short treatise on Aristotle's 'De Interpretatione'*, transl., ed., notes (Oxford: Oxford University Press, 1982), introduction, p. LXXXVIII-XCIII.

Rhetoric. The same holds for al-Fārābī's treatise *Kitāb al-alfāẓ al-mustaʿmala fi al-manṭiq*,[15] where the eight themes are also mentioned, and in his *Middle Commentary on De Interpretatione* where only seven are presented (the same as those of the *Didascalia* except for the name of the author). Second, although the "name of the author" is referred to in §2, this theme will never be explicitly examined in the *Didascalia*. It is possible that this theme has been dealt with by addressing the authenticity of the treatise. All this being taken into account, it seems that al-Fārābī did not slavishly follow his predecessors, but rather adapted for his own needs the methods employed by Alexandrian commentators and used certain parts while neglecting others. This is in fact what he claims in a passage of his treatise, *On Terms Used in Logic*:

> Most [modern commentators] make every effort to multiply [these distinctions]. As for us, let us leave this task to them. In the introduction of each work, Aristotle and his early disciples employ only [the distinctions] they need, and sometimes they use none at all. In most of the treatises Aristotle deals with the most important themes, namely the goal and usefulness. He often mentions the relation [of the treatise] to its [rank] and he sometimes mentions the mode of instruction used in the treatise.[16]

In this way al-Fārābī attaches himself to the Alexandrian tradition by borrowing the structure of the prologues, while he nonetheless modifies it to meet his own needs.

1.2 The eastern *Organon*; the political value of rhetoric from Plato to al-Fārābī

A second element makes it possible to connect al-Fārābī's work to the Alexandrian tradition. This concerns the passage where the Second Master takes up the Platonic allegory of the cave[17] at the end of a passage dedicated to the position the *Rhetoric* has in relation to Aristotle's other logical treatises:

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[15] Cf. Al-Fārābī, *Kitāb al-alfāẓ al-mustaʿmala fi al-manṭiq*, M. Mahdi (ed.) (Beyrouth: Bibliothèque Orientale, 1986[2]), p. 94, 15-95, 8.
[16] Al-Fārābī, *Kitāb al-alfāẓ al-mustaʿmala fi al-manṭiq*, p. 95, 9-16.
[17] On this passage cf. W.F. Boggess, "Alfarabi and the Rhetoric: The Cave Revisted," *Phronesis* 15 (1970), p. 89-90.

The example (*proverbium*) that Plato gave us in his *Republic* concerning the cave—how man leaves then comes back to it—corresponds to the order (*ordini*) that Aristotle established for the parts of the art of logic (*partibus artis logices*). Indeed, he begins with general precepts (*sententiis summatis*), that is to say those that pertain to many things (*que pertinent pluribus*), then he rises gradually and progressively to the most perfect science (*ad perfectissimam scientiam*). Next he begins to descend until he comes to the lowest sciences, the smallest and the most vile (*ad infimam et minimam et vilissimam earum*). What is found in the *Book of Demonstration* is what is most complete and most excellent in the sciences, whereas in the *Poetics* we see what is most imperfect [in the sciences we see what is the most perfect.] This order resembles that of the sciences that Plato described when discussing the shadows in the cave. Of course, the person that lives in the cave does not know himself or the others with him by the direct view that he could have of them. Instead, he only knows himself and others by seeing each person's shadow. The *Topics* is more similar to demonstrative science (*scientie demonstrative*); after it comes the *Sophistical Refutations*, then the *Rhetoric*. That is why Aristotle began with the *Categories*, with general and well-accepted knowledge (*a notitiis notoriis et summatis*). After he progressed in the direction of *Peri Hermeneias*, he set down a kind of knowledge that was higher in rank than what was found in the *Predicamenta*, and this is also true in the case of the *Prior Analytics*. He in fact produced the fourth *Book* to address what is most complete in the sciences. Then, he progressively descends, as has been noted, to what is most base within them, that is to say, the *Poetics*. It is therefore plausible that in the aforementioned example Plato sought the very method that Aristotle followed in the teaching of logic (*hanc viam quam processit Aristoteles in traditione logices*).[18]

In this text, al-Fārābī explicitly places himself within the eastern tradition that includes the *Rhetoric* and the *Poetics* in the *Organon*.[19] But this passage also emphasizes the fundamentally political role that the Second Master attributes to the *Rhetoric*, since here he defines the path that the philosopher must take, vested as he is with a mission to reveal the results of demonstrative science to a multitude with no access to reasoning. First, he must leave the shadows of the cave and progress from the *Categories* to the *Peri Hermeneias*, then to the *Prior Analytics* and

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[18] *Didasc*. §38.

[19] Cf. J. Watt, "From Themistius to al-Fārābī: Platonic Political Philosophy and Aristotle's Rhetoric in the East," *Rhetorica* 13 (1995), p. 17-41 (p. 19): "Like the Alexandrine commentators, Arabic writers treated the *Rhetoric* and the *Poetics* as the final two works of the corpus of Aristotle's logical writings. Furthermore, in al-Fārābī the justification of this eight-volume corpus is the same as we find in the Alexandrine commentator Elias: the five types of syllogism (apodeictic, dialectical, sophistical, rhetorical, and poetical) are each treated by Aristotle in different parts of the corpus, the first in the *Posterior Analytics*, with the *Categories*, *De Interpretatione*, and *Prior Analytics* as introductory to it, and the other four in the *Topics*, *Sophistical Refutations*, *Rhetoric* and *Poetics*."

Posterior Analytics (which represent the most perfect science). Then the philosopher returns into the cave, step-by-step, with the *Topics*, the *Sophistical Refutations*, then the *Rhetoric* and the *Poetics* (which is the most imperfect of the logical sciences) in order to finally communicate his knowledge to the multitude. Here the eminently political value of rhetoric recalls *On the Attainment of Happiness*, where al-Fārābī examines from a philosophical point of view the conditions that allow citizens to reach happiness. This task is directly related to a certain political order: the regime of the virtuous man. Four human things make it possible for nations and citizens to attain happiness: the theoretical virtues, the deliberative virtues, the moral virtues and the practical arts. If the Prince possesses these four things to a supreme degree due to the excellence of his nature, the same cannot be said of the citizens who constitute the many. The "multitude," in opposition to the "elites," is incapable of grasping first principles and the cause of beings as demonstrated by philosophy. The moral virtues and the practical arts will therefore be instilled in this multitude by an elite that uses persuasion or constraint depending on whether or not the citizens submit voluntarily. As for theoretical principles, the Legislator-Prince, who is also a Philosopher, should make them intelligible by taking images from these theoretical principles, images that he will then establish in the soul of the many by means of persuasive discourse. Thus, philosophy provides an explanation of the intelligibles based on an intellectual grasp of things and provides a demonstrative and certain explanation thereof, whereas rhetoric or religion imitates philosophy but can provide only an image of these intelligibles by explaining them on the basis of persuasive arguments:

> Once the images representing the theoretical things demonstrated in the theoretical sciences are produced in the souls of the multitude and they are made to assent to their images, and once the practical things (together with the conditions of the possibility of their existence) take hold of their souls and dominate them so that they are unable to resolve to do anything else the theoretical and practical things are realized. Now these things are *philosophy* when they are in the soul of the legislator. They are *religion* when they are in the souls of the multitude. For when

the legislator knows these things, they are evident to him by sure insight, whereas what is established in the souls of the multitude is through an image and a persuasive argument. Although it is the legislator who also represents these things through images, neither the images nor the persuasive arguments are intended for himself. As far as he is concerned, they are certain. He is the one who invents the images and the persuasive arguments, but not for the sake of establishing these things in his own soul as a religion for himself. No, the images and the persuasive arguments are intended for others, whereas, so far as he is concerned, these things are certain. They are a religion for others, whereas, so far as he is concerned, they are philosophy.[20]

Following the Platonic and the Neo-Platonic tradition, al-Fārābī recognizes a political role for rhetoric, which is simultaneously persuasive discourse, imitation of philosophy, and religion. That is to say, rhetoric is the means by which the Legislator and Philosophical Prince imposes his law on the multitude.

Taken together, these elements show that, by adopting the schema of Alexandrian prologues and following the eastern tradition of the "enlarged" *Organon*, al-Fārābī explicitly associates himself with the school of Hellenistic commentators, of which he is the heir. In doing so he vigorously affirms a continuity between Alexandrian Aristotelianism and Arabic Aristotelianism.[21]

2. The Reinterpretation of Aristotelian Means of Persuasion in the *Didascalia*

Though he emphasizes his involvement in a tradition, al-Fārābī also advances a new interpretation of Aristotle's *Rhetoric* that was to influence all subsequent commentators, the most important of whom are Avicenna and Averroes. For this reason it is necessary to try to explain its specificities after describing the main characteristics of his reinterpretation of the Aristotelian means of persuasion. But first it is important to briefly recall how Aristotle organizes the means of persuasion in the first two books of the *Rhetoric*, which focus on invention of arguments. The

[20] *Alfarabi's Philosophy of Plato and Aristotle. Part I: The Attainment of Happiness*, M. Mahdi (tr., intr.) (Ithaca, New York: Cornell University Press, revised edition, 1969), § 59, p. 49.
[21] On this point, cf. M. Grignaschi, "Al-Fārābī et l'Épître sur les connaissances à acquérir avant d'entreprendre l'étude de la philosophie[']", Türkiyat Mecmuasi 15 (1968), p. 176-210.

Stagirite establishes a division of means of persuasion according to the criterion of technical skill. He deals with non-technical means of persuasion, which exist before the orator's creation of the discourse and are excluded from the work of invention: laws, testimony, conventions, torture, and oaths. These are different from the three technical means of persuasion, which are acquired by means of a method: demonstration (*logos*)—with enthymemes and examples—the character of the orator (*ethos*) and the passions (*pathos*). The *logos* is examined in Book I, where Aristotle enumerates the premises that make it possible to construct enthymemes and examples for each of the three types of oratory: deliberative (I, 4-8), epidictic (I, 9) and judicial (I, 10-14). *Ethos* is addressed in the treatises at three points. At *Rhetoric* I, 2, 1356 a 5-13, Aristotle says that persuasion through character occurs when the discourse, now called ethical, is performed in a way that makes the orator trustworthy because we place our trust more rapidly and more fully in honest people. This trust, however, must be the effect of discourse and not a mere bias concerning the character of the orator. Later (I, 8, 1366 a 8 *sq*), Aristotle says that discourse is called ethical when we trust an orator because he has a certain character, that is to say, because he appears "virtuous or benevolent, or both." These two qualities reappear at the beginning of Book II (1, 1378 a 6-616) with a small modification because a third quality, prudence, now appears alongside virtue and benevolence.[22] At any rate, no passage that describes *ethos* makes it possible to conclusively determine if the discursive form of this means of persuasion is enthymematic or narrative. A passage from Book II certainly indicates that the orator must avoid formulating enthymemes when he deploys ethical discourse,[23] but Book II asserts that the

[22] I have proposed an explanation that accounts for this modification in *L'Èthos aristotélicien: Genèse d'une notion rhétorique, Textes et Traditions* (Paris: Vrin, 2007).
[23] *Rhet*. III, 17, 1418a 15 *sq*.

maxim, defined as a part of a syllogism, is the form that best allows for the expression of *ethos*.[24] Finally, the passions (*pathos*) are defined as that which brings the listener to an experience of a passion, "for we do not give the same judgment when grieved and rejoicing or when being friendly and hostile."[25] In Book II, Aristotle will divide the analysis of the passions into three parts: in the case of anger it is a question of examining (1) in what frame of mind it is experienced, (2) with whom one habitually becomes angry and (3) regarding which topics. As was the case with *ethos*, no decisive sign makes it possible to define the discursive form of this means of persuasion, namely, whether it has the structure of an enthymeme.

The way the means of persuasion are organized in the *Didascalia* reveals an entirely different logic. Indeed, instead of keeping technicality as the criterion of classification, al-Fārābi uses the form of the means of persuasion, that is, whether it is that of an enthymeme, to classify and hierarchize. This particular way of reframing the issue is explained by the inclusion of the *Rhetoric* in the corpus of Aristotle's logical works.

As early as the first lines of the *Didascalia*[26] al-Fārābi describes the place of the *Rhetoric* relative to two other logical treatises, the *Posterior Analytics* and the *Topics*, by identifying three types of belief (*creditiones*): 1) certitude (*certitudo*), defined as belief without contradiction, 2) belief that is close to certitude (*credulitas propinqua certitudini*), which concerns beliefs the opposite of which are admitted only with difficulty, and 3) persuasive beliefs (*credulitates persuasive*) of rhetoric, defined as those beliefs to which the soul assents although it could assent to the opposite. Each of these kinds of beliefs can be achieved with or without syllogisms. Certitude, which is studied in the *Posterior Analytics*, is demonstrative science when the belief is

[24] *Rhet*. II, 21, 1395b 11 *sq*.
[25] *Rhet*. I, 2, 1356a 14 *sq*. (tr. G.A. Kennedy).
[26] *Didasc*. §3-9.

acquired through a syllogism; when acquired without a syllogism it is achieved through first propositions. When obtained by syllogism, belief close to certainty, which is studied in the *Topics*, is acquired by topical or inductive syllogisms. When obtained without a syllogism, it is acquired by belief based on what is probable. Finally, a persuasive belief acquired by syllogism is attained by rhetorical syllogism or enthymeme. Obtained without a syllogism, it is acquired through eight things: 1) the testimony of a person (*testimonium*), 2) the affirmation of a person (*dictum alicujus*) supported by particular laws (*leges proprie*), 3) conventions (*conditiones et pacta*), 4) oaths (*juramentum*), 5) "miraculous or nearly miraculous words or deeds that call an adversary to become an equal" (*dicta vel facta externa alicujus quasi miraculosa vel vere miracula in quibus adversarius ipsius verbo conatur ei coequari*), 6) torture (*cruciatus*), 7) the speaker's reputation for honesty (*verbum alicujus qui reputatur apud nos vir magne honestatis*) and 8) the face, appearance, and body of the speaker (*vultus constantia et habitudo faciei et totius corporis gestus*). These means of persuasion are realized without syllogisms but can often be supported by and laid out with syllogisms. As for the rhetorical syllogism, it is formed from contingent propositions, the composition of which is either contingent, necessary, or formed from necessary propositions of contingent composition.[27] The eight persuasive things and the enthymemes are studied in the *Rhetoric*.

The reorganization of the means of persuasion in the *Didascalia* calls for two remarks. First, among the eight things that he considers "persuasive," al-Fārābi includes five non-technical means of persuasion from Aristotle's *Rhetoric*. He thereby rejects the Aristotelian criterion used

[27] M. Aouad has examined the difficulty raised by this definition of the persuasive syllogism in the *Didascalia*, noting that nothing currently appears to distinguish the dialectical syllogism from the rhetorical syllogism: cf. M. Aouad, "*Les fondements de la Rhétorique d'Aristote reconsidérés par al-Fārābī ou le concept de point de vue immédiat et commun*," *Arabic Sciences and Philosophy. A Historical Journal* 2 (1992), p. 133-180.

to set up a fundamental dichotomy between technical and non-technical means of persuasion, instead employing the distinction between means of persuasion that have a syllogistic form and those that do not. Also, among the three other "persuasive things," what Aristotle defined as the orator's *ethos* seems to be divided in two parts: on the one hand the honesty of the orator, and on the other hand his face, appearance and body. We also see a new element that must be explained, what al-Fārābi calls the words, miracles, and challenges.

Comparing the Aristotelian system with what al-Fārābi proposes in the *Didascalia* raises many questions: the function of the passions in this treatise,[28] the definition of the rhetorical syllogism and its relation to the dialectical syllogism, the influence of the *'ilm al-balāġa* on the doctrine of the *Didascalia*,[29] etc. Nevertheless, here I limit myself to clarifying three points: the division of the Aristotelian *ethos* into two distinct elements,[30] the addition of words, miracles, and challenges as one of the eight persuasive things, and the reinterpretation, in an Islamic context, of the notion of "law."

In Aristotle's *Rhetoric* the discursive form taken by *ethos* remained an open question. Al-Fārābi seems to have clearly defined the problem. By making the Aristotelian *ethos* one of the eight persuasive things that in themselves have no syllogism, he resolves this question and explicitly affirms that the persuasive image of the orator is not realized by means of a demonstration, but can nevertheless be corroborated by an argument. Moreover, the *ethos* is now represented by two distinct elements: the honesty of the orator and what al-Fārābi calls his face,

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[28] On this question cf. F. Woerther, "*Les passions rhétoriques chez Aristote et al-Fārābī : formes discursives et mécanismes d'induction*," *Organon* 36 (2007), p. 55-74.
[29] On this question see M. Aouad, "*Al-Fārābī critique des traditions non aristotéliciennes de la rhétorique*," in F. Woerther (ed.), *Literary and Philosophical Rhetoric in the Greek, Roman, Syriac, and Arabic Worlds*, Europaea Memoria (Hildesheim: Olms, 2009), p. 155-183.
[30] For an exhaustive treatment of the problem of *èthos* in the *Didascalia*, cf. F. Woerther, "*L'interprétation de l'*èthos *aristotélicien par al-Fārābī*, " *Rhetorica* 26 (2008), p. 392-416.

appearance, and body. This last category does not appear in Aristotle where he enumerates the three means of technical persuasion. In fact, it would be quite surprising if Aristotle had mentioned it, since he systematically underlines the purely discursive, non-referential character of this technical means of persuasion, the construction of which is not based on the real person of the orator, even less on his body or face. How can the appearance of this category be explained? Was al-Fārābi recalling book III of the *Rhetoric* where Aristotle dedicates several lines at the beginning of the chapter to oratorical action?[31] This hypothesis does not seem convincing, not only because in the *Didascalia* al-Fārābi never refers to the questions dealt with in Book III, but also because in the prologue he mainly refers to *Rhetoric* I.2, which Arabic commentators generally considered the core of Aristotle's doctrine on rhetoric.

A more likely hypothesis requires that I refer to the Arabic version of the *Rhetoric* that al-Fārābi relied on to write his commentary. This is an ancient translation carried out by means of a Syriac intermediary before the eighth-tenth centuries. In the passage where the three technical means of persuasion are enumerated, the Greek *ethos* was translated by two words, as is often the case in the Arabic translations. There is *kayfiyya*, which signifies quality in a general sense, and *samt*, a more polyphonic term that refers to a person's way of being, his sense of calm, and his seriousness. Al-Fārābi may have interpreted the first term as the orator's excellence or honesty, with the second referring to the orator's physical aspect alone.[32] Moreover, it is not impossible that al-Fārābi was influenced by Arabic rhetoric, notably that of the *Kitāb al-bayān wa al-tabyīn*

[31] Rhet. III, [1], 1403b 22 *sq*.
[32] This interpretation is found again in Averroes, cf. M. Aouad, "Les fondements de la Rhétorique d'Aristote reconsidérés par al-Fārābī ou le concept de point de vue immédiat et commun," *Arabic Sciences and Philosophy. A Historical Journal* 2 (1992), p. 161.

by Ǧāḥiẓ, where the notions of oratorical action, the orator's physical mastery, and questions related to bodily movements or pronunciation are discussed.[33]

If the addition of the orator's body to the persuasive things can be clarified by referring to the version of the *Rhetoric* used by al-Fārābi, other changes in the *Didascalia*'s economy of proofs are due to the Islamic social-political context. The "words, miracles, and challenges" — which are defined as "beliefs produced by miraculous or nearly miraculous words or deeds that call an adversary to become an equal,"[34]—are derived from the inimitable character of the dogma of the Koran (*i'ğāz*). The *i'ğāz* is indeed a challenge issued by the prophet: those who believe the *Koran* is a human product are invited to compose an equally beautiful work, "Say: If men and jinn banded together to produce the like of this Koran, they would never produce its like, even though they backed one another."[35] Their inability to produce such a work is a sign that the Koran is miraculous and of divine origin. In the context of rhetoric, the category "words, miracles, and challenges" is in itself persuasive, but it is not yet rhetorical. It only becomes rhetorical at the moment when the orator demonstrates that a miracle has occurred. For example, if someone affirms that a poet has written a work as beautiful as the *Koran*, it will be necessary to demonstrate that there are imperfections in it.

The Islamic context also accounts for the changes in the passage on law from the *Rhetoric* to the *Didascalia*.[36] In chapter 15 of the first book, Aristotle examines two cases and

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[33] For more details, cf. F. Woerther, "L'interprétation de l'*èthos* aristotélicien par al-Fārābī," p. 402-404.
[34] *Didasc*. § 7.
[35] *Coran*, XVII, 90/88 (tr. A.J. Arberry).
[36] On the treatment of law in the *Didascalia*, cf. M. Aouad, "Les lois selon les *Didascalia* in Rethoricam (sic) *Aristotelis ex glosa Alpharabii*," *Mélanges de l'Université Saint-Joseph* 61 (2008), p. 453-470.

establishes a distinction between common law and written law. [37] First, he enumerates the areas that allow for the precedence of common law over written law in cases where the former is favorable to us. If the written law changes often, he tells us, the common law that exists by nature (*κατὰ φύσιν*) is stable (*οὐδέποτε μεταβάλλει*) and therefore more just. The justice of honest men never changes, hence the words of Antigone, who buried her brother contrary to the law of Creon but in conformity with the non-written law, which « [has] life, not simply today and yesterday, but for ever."[38] The written laws, on the other hand, are subject to interpretation when they contradict themselves or each other, when a law is ambiguous and requires exegesis, or when a law was motivated by circumstances that no longer exist at the moment of the application of the law. Second, Aristotle addresses those areas favorable to written law when he states, for example, that not applying a written law is equal to having no law at all, and that one should not presume to be wiser than the laws. In the *Didascalia*, at the beginning of the paragraph dedicated to the law, one reads:

> The [second] thing is belief caused by what another says (*dictum alicuius*), what one says about that person (*eius relationem*), or the particular law (*lex propria*) of the speaker. Indeed, old laws and decrees, as will be said in what follows, fall into two categories: some are the product of the particular law of a certain nation and valid for a certain period of time and for a certain people. An example of this is the command, "It is forbidden to eat pork" and "It is forbidden to slit the throats of animals," along with similar injunctions. These are distinct from common law, which does not concern one nation or period more than another. Examples of this kind of command are "One must not act badly towards someone who has offended you," and "One must not treat one's parents badly."[39]

Here Al-Fārābi takes up the Aristotelian dichotomy of particular law versus common law. The first is of limited application and valid only at certain times, like old laws and decrees, and

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[37] *Rhet*. I, 15, 1375a 25. See also the distinction between particular law vs. common law in *Rhet*. I, 10, 1368b 6-8, where Aristotle defines the unjust act as one that violates the law, and *Rhet*. I, 13, 1373b 4-18 where he discusses the assessment of guilt.
[38] Sophocles, *Antigone*, 456; tr. Lloyd-Jones.
[39] *Didasc*. § 5

among his examples are two precepts of the law of Islam—the laws against eating pork[40] or a dead animal that has not previously had its throat slit[41]—while the common law is valid at any time or place. Moreover, a more precise examination of the first sentence indicates that a certain type of particular law is assimilated to the Koran. The expression "belief caused by what another says" refers to the testimony of Muhammad, who received the word of God, the Koran. "What one says about that person" refers to the *ḥadīth*, traditions that collect the words and acts of Muhammad. Put differently, al-Fārābi reinterprets the Greek opposition written law vs. non-written law within the context of Islamic civilization by recognizing the *Koran* and the *ḥadīth* as having a specific role among particular laws in contrast to common law.

If we characterize al-Fārābi's work in the *Didascalia* in this way, it is important to keep in mind at least three fundamental points that were to influence subsequent Arabic commentaries on the *Rhetoric*. Al-Fārābi takes his place within the eastern Alexandrian tradition that recognizes the *Rhetoric* (along with the *Poetics*) as a treatise on logic, and grants rhetoric a decisive role in the relationship between a people and their ruler, a point that the Second Master emphasizes in *On the Attainment of Happiness*. This study of Al-Fārābi's reinterpretation of certain Aristotelian means of persuasion has also allowed me to emphasize the role of the Arabic version of the *Rhetoric*, the text of reference for Arabic commentators. This translation is a version of the text that, due to its own particularities, often distances itself from the Greek and invites the exegete to reconstruct its logic. Finally, it is important to keep in mind the resonance of the Islamic context, which leads the Arabic philosopher to adapt his reading to the social-religious conditions of his time and milieu.

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[40] Cf. J. Schacht, "*Mayta*," [EI2], C.E. Bosworth, E. Van Donzel, Ch. Pellat (ed.) (Leiden: Brill, vol. VI, 1991), p. 916-918.
[41] Cf. F. Viré, "[Khinzīr]," [EI2], C.E. Bosworth, E. Van Donzel, B. Lewis, Ch. Pellat (ed.) (Leiden: Brill, vol. V, 1986), p. 8-10.

Aristotle's 'Physical' Works and the Arabic Tradition

Paul Lettinck

INTRODUCTION

In this contribution we discuss how Aristotle's 'physical' works, in particular the *Physics* and the *Meteorology*, were translated into Arabic, how these works were studied and interpreted in the Arab world, and what Arabic scholars contributed to the understanding of the phenomena that are dealt with in these works of Aristotle. It will be seen that those who commented upon Aristotle's works or wrote treatises on natural phenomena remained within the framework of the Aristotelian worldview, but were not uncritical; they disagreed with certain views of Aristotle and presented new ideas and arguments.

Several translations were made of the *Physics*, only one of which has been preserved, namely that of Isḥāq ibn Ḥunayn. The Greek commentaries of Alexander of Aphrodisias, Themistius, and Philoponus were also translated and studied by the Arabs. These translations have not been preserved, except for a few quotations; a summary of the commentary of Philoponus is included in the manuscript of Isḥāq's translation of the *Physics*.

Arabic commentaries on the *Physics* were written by al-Fārābī (not preserved), Ibn Bājja and Ibn Rushd. Ibn Sīnā discusses the topics of the *Physics* as a part of his encyclopedic work *Kitāb al-Shifā'* and in an abridged form in his *Kitāb al-Najāt*. These topics were also treated by later scholars of the 'school of Ibn Sīnā' who wrote similar encyclopedic works, such as Abū l-Barakāt al-Baghdādī. Also, some short commentaries

are included in the manuscript of Isḥāq's translation by various scholars from the Baghdad school of Yaḥyā ibn `Adī where the *Physics* was studied.

One Arabic version of the *Meteorology* has been preserved, namely the one of Yaḥyā ibn al-Biṭrīq. This is rather a paraphrase than a translation. Arabic translations of the Greek commentaries of Alexander and Olympiodorus existed and were studied by Arabic scholars, but they are not preserved. Besides these, a work known as Olympiodorus' *Commentary on Aristotle's Meteorology*, translated by Ḥunayn ibn Isḥāq, existed in the Arab world. This is not an Arabic translation of Olympiodorus' Greek commentary.[1] It is mostly a paraphrase and systematization of Olympiodorus' commentary, but it also contains features that are not in Olympiodorus. Possibly it is a translation of a Greek or Syriac treatise on meteorology, largely, but not exclusively based on Olympiodorus' commentary. We have called its author Pseudo-Olympiodorus. Arabic scholars, especially Ibn Sīnā, have used this work.

Arabic commentaries on the *Meteorology* have been composed by Ibn Bājja and Ibn Rushd. Al-Kindī wrote a few letters on meteorological phenomena. The subject matter was discussed by Ibn Sīnā in his *Kitāb al-Shifā'* , and by those belonging to his 'school,' such as Abū l-Barakāt al-Baghdādī and Fakhr al-Dīn al-Rāzī.

In what follows we shall first give an example of what could happen to an Aristotelian text when it was translated and interpreted in the Arab world. Then we shall review some of the contributions of Arabic scholars to the understanding of the physical phenomena that were discussed by Aristotle.

[1] F.W. Zimmermann, H.V.B. Brown, "Neue Übersetzungstexte aus dem Bereich der spätantike griechischen Philosophie", *Der Islam* 50 (1973), 313-324.

This review is far from complete; due to limited space we can discuss a few selected topics only, and we had to omit others, such as the discussion of the infinite, and in connection with this, the eternity of the world. The idea of an eternally existing world without beginning or end, such as adopted by Aristotle, could not be accepted by some Muslim scholars, and so they adduced proofs that the world cannot exist for an infinite time. This led to a further examination of the concept of the infinite, one of the important topics in the *Physics*, by scholars such as al-Kindī, Ibn Sīnā and Ibn Bājja. Aristotle's definition of place was another topic from the *Physics* which was found problematic by ancient Greek and medieval Arabic scholars; Ibn Bājja and following him, Ibn Rushd proposed an adaptation of the definition which would solve the difficulties. Ibn Bājja and Ibn Rushd also criticized and adapted Aristotle's explanation of the nature of the Milky Way in the *Meteorology*, since this explanation did not agree with certain observational facts. For these topics and others we refer to our books on the reception of the *Physics* and the *Meteorology* in the Arab world.[2]

TRANSLATION AND INTERPRETATION OF ARISTOTLE'S WORKS

The translations of Aristotle's works into Arabic, which were the source of knowledge of these works in the Arab world, were of various quality. This does not mean that a translation that is not very faithful to the Greek text of Aristotle has been made by a 'bad' translator; various factors may have caused the deviations from the Greek text. For instance, the Arabic version of the *Meteorology* by Ibn al-Biṭrīq differs from Aristotle's Greek text in many respects: the order of chapters is different, and some chapters do not

[2] P. Lettinck, *Aristotle's Physics and its Reception in the Arabic World. With an Edition of the Unpublished Parts of Ibn Bājja's Commentary on the Physics*, E.J. Brill, Leiden, New York, Köln 1994 (Aristoteles Semitico-Latinus 7) and Id*., Aristotle's Meteorology and its Reception in the Arab World. With an Edition and Translation of Ibn Suwār's Treatise on Meteorological Phenomena and Ibn Bājja's Commentary on the Meteorology*, Brill, Leiden, Boston, Köln 1999 (Aristoteles Semitico-Latinus 10).

correspond to any text by Aristotle at all, whereas certain paragraphs of the Greek text do not occur in the Arabic version; also, commentaries are added and on certain subjects views are presented that differ from Aristotle's view. One has to conclude that it was not Aristotle's original text that was rendered into Arabic, but a later Hellenistic paraphrase.[3] Moreover, this Greek paraphrase was probably first translated into Syriac, and then from Syriac into Arabic. Deviations from Aristotle's text are sometimes due to mistranslations, whereas misunderstanding of the text by the Greek author of the Hellenistic paraphrase may have had the same result.

All Arabic scholars who wrote treatises on meteorology used Ibn al-Biṭrīq's version of the *Meteorology*. They were under the impression that they read Aristotle's text, whereas in fact they read a rather different version of it. This situation led to confusion. Ibn Rushd, for instance, thought he was reading Aristotle's text when he read Ibn al-Biṭrīq's version. At the same time, he also read the Arabic translation of Alexander's commentary on the *Meteorology*, which gives a faithful rendering of Aristotle's text. In this way Ibn Rushd could find two different opinions on a certain subject, the one by Alexander, who in fact represents Aristotle's opinion, the other by someone he thought was Aristotle, but who was in fact the author of the Hellenistic-Arabic paraphrase. Faced with this situation, Ibn Rushd does not choose between both opinions, but tries to harmonize them: he says that there is some truth in both, or that they are different aspects of the same thing.

As an example we discuss what happened to Aristotle's passage 362a11ff. of the *Meteorology*, where it is stated that in our (northern) hemisphere a northern wind blows

[3] G. Endress, Review of: C. Petraitis (ed.), *The Arabic Version of Aristotle's Meteorology*, Beyrouth 1967, *Oriens* 23-24 (1974), 506-509.

after the summer solstice, and that correspondingly a southern wind will blow in the southern hemisphere after the winter solstice; however, this southern wind will not reach our region. There is a wind ('bird wind') that starts blowing seventy days after the winter solstice, but it is weaker than the northern wind after the summer solstice. In Ibn al- Ibn al-Biṭrīq's version corresponding to this passage it is stated that people have asked why northern winds blow after the end of the summer season and after the end of the winter season. This shows a misunderstanding of Aristotle's text, partly caused by the mistranslation of 'after the summer solstice' (*meta tas therinas tropas*) by 'after the end of the summer season (*ba`da inqidā' faṣl al-qayẓ*), and similarly for 'after the winter solstice.'[4] An answer to the question is given in Ibn al-Biṭrīq's text, and the question and its answer are quoted in Ibn Rushd's *Middle Commentary on the Meteorology*. Ibn Rushd then remarks that that he has found this in the Aristotelian text available to him, but that in Alexander's commentary instead it is asked why northern winds blow after the summer solstice and south winds start to blow seventy days after the winter solstice. This in fact corresponds to Aristotle's text. After having suggested two possible replies on this question Ibn Rushd concludes his commentary saying that both accounts, that of Aristotle (which is in fact Ibn al-Biṭrīq's modified version) and that of Alexander (which is more or less Aristotle's original version) are not contradictory and may both be valid, since it is possible that two contrary winds blow successively in the same season.[5]

[4] Ibn al-Biṭrīq, *Meteorology = The Arabic Version of Aristotle's Meteorology*, ed. C. Petraitis, Dar el-Machreq, Beyrouth 1967 (Recherches publieés sous la direction de l'Institut de Lettres Orientales de Beyrouth, série I, t. 39), 70,4-71,5.

[5] Ibn Rushd, *Middle Commentary on the Meteorology = Talkhiṣ al-āthār al-`ulwiyya*, ed. J.A. Alawi, Dār al-gharb al-islamī, Beyrouth 1994, 108,6-109,11.

CONTRIBUTIONS OF ARABIC SCHOLARS

a) The definition of motion (change)

The first three chapters of Aristotle's *Physics*, Book III are devoted to the definition of motion.[6] Motion is defined by means of the concepts actual and potential existence. In each of the several categories of existence (substance, quality, quantity, place, etc.) existence may be actual or potential. Something has an actual existence when it has a certain form; if it does not have that form and if it is such that it may get that form, its existence is potential (in relation to that form). These two ways of existence are opposites (form and privation), and a thing may move (change) between these opposites. This may occur in each of the categories and this gives rise to different kinds of motion or change: change of substance, of quality, of quantity, of place, etc.

Now Aristotle defines motion as 'the actuality of what potentially is, as such' (*hē tou dunamei ontos entelecheia, hēi toiouton – Physics* III,1, 201a11), often more extensively rendered as 'the actuality of what exists potentially, insofar as it exists potentially' (*i.e.* insofar as it is potentially that actuality). For instance, the process of building occurs, when what is buildable (*e.g.* bricks and wood, which are potentially a house) has its actual existence as being buildable (*i.e.* as being potentially a house).

The further explanation of this definition has occupied commentators from Themistius until modern times and has also been a subject of discussion by Arabic scholars. We first give the most plausible interpretation, which is subscribed by most, but not all, modern scholars, and which is based on the article by Kosman.[7]

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[6] We use here and in what follows the word 'motion' (*kinēsis*) in Aristotelian sense, that is, it refers not only to local motion, but to any kind of change, such as change of color, temperature, size, etc.
[7] L.A. Kosman, "Aristotle's definition of motion", in *Phronesis* 14 (1969), 40-62.

The phrase 'actuality of what exists potentially' in the definition of motion is apparently not meant by Aristotle to refer to the actual final result of the motion: the actuality here is not the actual house after it has been built from the raw materials that were potentially a house before. Also, 'actuality' here does not mean '(the process of) actualization'; if that were the case, the definition would be circular: it would contain the concept which is to be defined, since (the process of) actualization is nothing but the motion (process) from something being potentially X to something being actually X.

Thus, 'actuality of what exists potentially' must refer to the motion (*e.g.*, the process of building) without meaning '(the process of) actualization of what exists potentially'. That 'actuality' may indeed refer to motion becomes clear when one realizes that it is during the process of building that the potentiality (of the raw materials to be an actual house) is actually active ('alive') *as potentiality*. It is then that the potentiality becomes manifest; before that this potentiality was only 'latent'. It is during the motion that the potentiality (for having reached the final point of the motion) is actualized. This explains the definition, the use of 'actuality' in the definition, and the addition 'insofar as it exists potentially.' As long as the motion continues, there is actual potentiality; when the motion is finished, there is no potentiality any more.

Thus, one may distinguish two actualities:[8] (1) the actual being of a thing X and (2) the actuality of something which is potentially X, insofar as it is potential, and that is the motion of what is potentially X to what is actually X. Indeed, as we shall see below, the commentators explicitly distinguish two actualities: the actuality of the motion and the actuality of the result (final product) of the motion. This is also implicitly recognized

[8] We do not mean that the word 'actuality' has two meanings, but that there is an actuality of two different things: the actuality of what is potentially X, when the motion to X is completed, and the actuality of what is potentially X, *as potentiality* or in other words, the actuality of the potentiality to be X.

by Aristotle when in Book III,2 he takes up the definition of motion again and says that motion is an incomplete actuality (for as long as the motion goes on it is not yet complete), and he distinguishes this from simple actuality (the result of the motion).

If one applies the definition of motion to the process of making a statue out of bronze, then what is potentially a statue is the bronze, and motion to a statue takes place when this potentiality (to be actually a statue) is actually active, not as itself (not as bronze), but as something being potential (*sc*. being potentially a statue). The actuality of bronze as bronze is bronze and that is not the motion. The motion is the actuality of bronze as being potentially a statue. Apparently, being bronze and being potentially a statue are different, although they refer to the same object, namely, a piece of bronze (the former is the matter, the latter is the privation).

Corresponding to the two actualities, one may distinguish two aspects of the potentiality to be a house: (1) the potentiality of the raw materials to be actually a house and (2) the potentiality of the raw materials to become active *as potentiality*, that is, as being potentially a house; the actuality of the potentiality under this aspect is the motion. We now turn to the ancient Greek and medieval Arabic commentators and compare their comments with the above interpretation of Aristotle's definition of motion.

Themistius modified Aristotle's definition as follows: 'motion is the *first* actuality of what potentially is, insofar as it potentially is.'[9] Apparently he had realized that the term 'actuality' is ambiguous and might refer to different kinds of things. This is clearly set out by Philoponus in his commentary on Aristotle's definition.[10] He says that

[9] Themistius*, in Phys. = In Aristotelis physicorum libros paraphrasis*, ed. H. Schenkl, CAG V 2, Berlin 1900, 70,6-8.
[10] Philoponus, *in Phys. = In Aristotelis physicorum octo libros commentaria*, ed. H. Vitelli, CAG XVI-XVII, Berlin 1887-88, 342,10-344,7 and 351,8-15.

'actuality' may refer to two things: (1) Something may be said to be actual when it has reached its form or perfection, and all potentiality in it has disappeared. For instance, bronze is potentially a statue since it may be made into a statue by a sculptor. When the statue is ready and has reached its final, perfect form, it is completely actual with no potentiality left in it. (2) Something may also be said to be actual when it has left its state of complete potentiality and is in the process of going towards its final form. This actuality exists while the sculptor is making the bronze into a statue. During this process the potentiality is still (partly) preserved; this potentiality has completely disappeared when the statue is completed. There is motion as long as there is potentiality. When there is no potentiality left, the motion is completed. Motion is the *first* actuality of what potentially exists. The final result of the motion, when the form is completely acquired, is the *second* or *last* actuality.[11] Arabic scholars commenting upon Aristotle's definition of motion all adopt Philoponus' (originally Themistius') distinction between first and second actuality or perfection (*kamāl*).

Ibn Sīnā defines motion as the actuality and first perfection of something which exists potentially as far as it exists potentially. He explains this as follows in his *Kitāb al-Najāt*:

> When a body is actually in A and potentially in B, then as long as it is in A it is at rest, and potentially moving and potentially arriving in B; when it is moving, then the first actuality or perfection is reached (*i.e.* it is not potentially moving any more, but actually moving); by means of this first perfection, which is motion, it arrives at its second perfection or actuality, which is arriving in B. But as long as

[11] The concept of first and second actualities (and potentialities) is also used by Aristotle, but he uses it in a different context, see P. Lettinck, *Aristotle's Physics and its Reception in the Arabic World*, 170.

> it is in its first perfection (= in motion), it is still in potentiality with regard to being in B. A body is in motion insofar it is potentially in B, not insofar it is actually something, like a man or bronze. Thus, motion is something between pure potentiality and pure actuality; it is a perfection, but not a complete one.[12]

In his *Kitāb al-Shifā'* he says that motion is a kind of perfection, but that it differs from other perfections in that when a perfection (other than motion) is reached, then the thing X actually exists and no potentiality for being X exists in it anymore;[13] for instance, when something becomes actually black there does not remain anything which is still potentially black; but the perfection which is motion keeps potentiality in it as long as the motion is not finished. In fact, when a body is resting in A it has two potentialities: the potentiality to be moving to B and the potentiality to be in B. Corresponding to these two potentialities, there are two actualities (perfections). When the first potentiality becomes actual (first actuality), then this is the motion; as long as the motion continues this potentiality remains, since it is still moving to B, while the second potentiality also remains present in this first actuality. The second potentiality disappears and becomes actual at the arrival in B. Then also the first potentiality has disappeared.

After having stated the definition of motion, Ibn Sīnā says[14] that one may conceive motion in two ways. The first one is that one is aware of the fact that a body was at position A first and then has arrived at position B after that; from this awareness one derives the concept of motion from A to B. This can be a mental conception only

[12] Ibn Sīnā, *K. al-Najāt*, ed. M. Fakhri, Dār al-āfāq al-jadīda, Beyrouth 1985, 142,16-143,2.
[13] Id., *K. al-Shifā' Ṭabī`iyyāt 1: Al-Samā` al-ṭabi`ī*, ed. S. Zayid and I. Madkour, Al-hay'a al-miṣriyya al-`āmma lil-kitāb, Cairo 1983, 82,9-83,4.
[14] Ibn Sīnā, *K. al-Shifā', Ṭabī`iyyāt 1*, 83,18-84,18.

with no actual counterpart in reality, for when this awareness occurs, the actual motion from A to B is already finished.

The second way of conceiving motion does have a counterpart in reality and properly describes the actual state of a moving body. It is the state of the body while it is between the starting point and the end point. This state is characterized by being such that at any instant the body is at a position at which it has not been before that instant and will not be after that instant. This is the 'form of the motion that exists in the moving body' and this is the first perfection. Thus, this description could well serve as an alternative definition of motion.

A further study of Ibn Sīnā's definition of motion, its use at other places in his *Shifā'* and a comparison with earlier scholars has been presented by Hasnawi, with a French translation of the relevant passages from the *Shifā'*.[15] Ibn Bājja[16] says that motion is something between a purely potential being (in which there is no actuality) and a purely actual being (in which there is no potentiality); it is a way of being between these two extremes, which has a part of both. Take for instance the motion of a body X along the line AB from A to B. When X is still in A, it is potentially in B and it has nothing in it of (actually) being in B. When X is in B, then the potentiality of being in B has completely disappeared. When X is in C, a point between A and B, then X has a part of (being in) A and a part of (being in) B; parts of A and B are actual in X, whereas it is also still partly potentially being in B. In fact, X is never completely actual in any point

[15] A. Hasnawi, "La définition du mouvement dans la *Physique* du *Shifā'* d'Avicenne" in *Arabic Sciences and Philosophy* 11 (2001) 219-255.
[16] Ibn Bājja, *Shurūḥāt al-samā` al-ṭabi`ī*, ed. M. Ziyāda, Dār al-Kindī, Dār al-fikr, Beyrouth 1978, 29,16-30,8.

between A and B: when we want to find it in any such point, we find it has already passed that point. It is this kind of being that is motion and change.

Here Ibn Bājja states an essential feature of motion, namely that what is in motion is never at the same point at different instants. The same feature was recognized by Ibn Sīnā when he said that when a moving body is at a certain point at a certain instant it is not at that point before or after that instant (see above). Ibn Bājja further states[17] that, applying Aristotle's definition of motion to the building of a house, one may say that the process of a house being built is the perfection or actuality of what is buildable (what is potentially something being built). The form of the house when the building is completed is also an actuality or perfection, but a different one; the former perfection is the perfection of the buildable 'as buildable', i.e. insofar as it has the potentiality of being (in the process of being) built, the latter one is the perfection of the buildable insofar as it has the potentiality to be a (completed) house. Aristotle added the phrase 'insofar as it is potential' to make clear that motion is the former kind of actuality. Ibn Rushd discusses the definition of motion along the same lines as Ibn Bājja. In his *Long Commentary* he says:

> In the definition of motion Aristotle adds 'insofar as it is potential', because what is movable (potential) has two perfections: a perfection insofar as it is not movable, and a perfection insofar as it is movable and the latter is what motion is.[18]

In the *Middle Commentary* he elaborates on this, saying that perfection is either an actuality at rest, in which no potentiality remains, and which is (being at) the end point of

[17] Id. 31,2-17.
[18] Ibn Rushd, *Long Commentary on the Physics*, in *Aristotelis opera cum Averrois Commentariis*, vol. IV, Venetiis 1562, reprinted Frankfurt am Main 1962 ff., 88A12-B3.

the motion, or it is an incomplete actuality, which still keeps some of the potentiality; this last kind of actuality is what motion is.[19] The two perfections are again distinguished in his *Short Commentary* in almost the same formulation.[20] Reviewing the commentaries on Aristotle's definition of motion we note that Philoponus, following Themistius, distinguishes two actualities; the first one is the actuality of the potentiality of a thing to be X, while this potentiality remains (partly) present in the actuality, and that is the motion; the second one is the actuality which arises when the thing has become X and when no potentiality is left. Apparently Philoponos considers the potentiality of a thing to be X to be a kind of quality which it may possess in a larger or smaller degree, such as a body may be more hot or less hot. At the beginning of the motion this potentiality is present at its maximum, and during the motion it gradually decreases, until it has vanished when the motion is completed.

Ibn Sīnā also distinguishes two actualities and corresponding to them two potentialities: the potentiality to be moving to X and the potentiality to be X; motion is the actuality of the first potentiality. This definition is vulnerable to a criticism which was formulated by Kosman, namely that it does not say anything informative about motion: saying that motion is the actuality of the potentiality to be moving is like saying that black is the actuality of the potentiality to be black. Although Ibn Bājja does not explicitly use the expressions 'first actuality' and 'second actuality', it is clear that he makes the same distinction into what Philoponus and Ibn Sīnā have called first and second actuality or perfection. He also distinguishes, like Ibn Sīnā, a first and second

[19] Id., *Middle Commentary on the Physics*, in *Aristotelis opera cum Averrois Commentariis*, vol. IV, 450A7-C6.
[20] Ibn Rushd*, Short Commentary on the Physics = Kitāb al-samā` al-ṭabi`ī (Epitome in physicorum libros)*, ed. J. Puig Montada, Instituto Hispano-Arabe de Cultura, Madrid 1983, 31,9-14.

potentiality: the potentiality to become involved in the process of building (moving), and the potentiality to be a built house (be at the final point of the motion). The ancient and medieval commentators have progressed into the direction of the modern explanation of Kosman with their distinction of two actualities. Still, Kosman's interpretation is different in its details and avoids motion to be defined as the actuality of the potentiality to be moving, such as found in Ibn Sīnā.

b) Aristotelian dynamics

Several aspects of dynamics were discussed by Aristotle and his Greek and Arabic commentators, a discussion that continued throughout the Western Latin Middle Ages until Galileo. The first one is the question of the cause of a body's motion. Aristotle's view is that natural motions (heavy bodies falling and light bodies rising) occur because bodies, if they are not in their natural place, by nature move to that place, thus actualizing a not yet fulfilled potentiality. Bodies with a non-natural motion, for instance, a stone thrown upwards, are moved by another body that is in contact with it, like the hand of the thrower. When the thrown body is no longer in contact with the thrower, there must be something else that moves it. In *Physics* IV,8 and VIII,10 Aristotle explains that it is the medium through which the body is moving that moves it: when a stone moves up through the air it is the surrounding air which somehow pushes the stone further upward. This was found quite unbelievable by Philoponus; he presents an extensive refutation of this theory and then proposes his own theory.[21] For instance, he says that if a stone was placed at a certain point and if one were to move the air under it, the stone would not move upward from its place, even if it were a very strong stream of air. Instead, he introduced the

[21] Philoponus, *in Phys.*, 637,6-644,22, for the most part translated into German by Böhm, see W. Böhm, *Johannes Philoponos. Ausgewählte Schriften*, Verlag Ferdinand Schönigh, München, Paderborn, Wien 1967, 135-141.

concept of 'impressed force': the thrower transfers a certain incorporeal moving force (*kinētikē dunamis*) into the body, and that is what causes its motion. This force gradually weakens during the motion, so that finally the motion ceases. The natural motions of bodies and the circular motions of the celestial spheres are also caused by such impressed forces.

Most modern scholars have argued for the originality of Philoponus' idea of 'impressed force',[22] but Philoponus himself ascribes it to Aristotle. In *Physics* III,3 Aristotle discusses the question whether the motion (change) exists in what is moved (the patient) or in the mover (the agent), since in fact, the mover, when it causes something else to move, also moves, with the same motion as what is moved by it. If one asks where the motion exists, in the mover or in what is moved, one should say that the motion is located in what is moved, whereas it is brought about by the mover, which has the same motion. The processes of causing motion and being subject to motion are in fact one single process, but they are differently defined, just as the road uphill and downhill are the same, and the processes of teaching and learning are the same, but differently described.

Commenting upon Aristotle's statement that the change is located in that which is subject to it (patient), whereas it is originated in that which causes it (agent), Philoponus says that this does not mean that the agent itself is not subject to change; in fact, often it can bring about change only by being subject to change itself; this is especially clear for local motion.[23] Aristotle means, says Philoponus, that there is a certain power or force which is able to cause change (motion). This moving power (*kinētikē dunamis*) has its

[22] See for instance, M. Wolff, "Philoponus and the Rise of Preclassical Dynamics" in R. Sorabji (ed.), *Philoponus and the Rejection of Aristotelian Science*, Duckworth, London 1987.
[23] Philoponus, *in Phys.* 384,11-385,11.

origin in the agent of the motion, and the agent transfers it to what is moved by it, where it is actualized, *sc*. by bringing about the motion. It is like when a teacher is teaching a certain theorem. Then a certain influence, which has its origin in the teacher, is transmitted to the pupil and causes him to learn a theorem.

Philoponus' theory of impressed force became known in the Arab world and was propounded by Ibn Sīnā, who called this force an 'acquired force' (*qūwa mustafāda*) or 'inclination' (*mayl*).[24] In the Latin Middle Ages it was known as the impetus, and it was much discussed until Galileo. The subject has been extensively investigated by modern scholars and we refer to their work for further details.[25] Another situation discussed by Aristotle and his commentators is that of a body with mass M which is moved by a force F and has acquired the velocity v.[26] His ideas about the relation between M, F and v, set out in *Physics* IV,8 and VII,5, are usually summarized by the formula $v = F / M$. If the motion is a natural one, for instance a body falling in a certain medium, such as air or water, the formula becomes $v = W / D$, in which W is the weight of the body and D is the density of the medium, for in this case the weight of the body is the force that is working on the medium which must be moved away during the motion. It follows that if a body were to move in a void, the motion would be instantaneous (the speed would be infinite). This is one of Aristotle's arguments against the existence of void. Philoponus, Ibn Bājja and later Thomas Aquinas and others did not agree with this formula for a motion in a

[24] Ibn Sīnā, *K. al-Shifā'*, *Ṭabī`iyyāt 1*, 133,6-134,1 314,13-315,11 326,6-7. S. Pinès, "Études sur Awḥad az-Zamān Abū l-Barakāt al-Baghdādī," in Id., *Studies in Abū l-Barakāt al-Baghdādī, Physics and Metaphysics*, The Collected Works of Shlomo Pinès, vol I, The Magnes Press, The Hebrew University, Jerusalem 1979, 1-96. A. Hasnaoui, "La dynamique d'Ibn Sīnā," in J. Jolivet and R. Rashed (eds*.), Études sur Avicenne*, Les belles lettres, Paris 1984, 104-123.

[25] A. Maier, *Zwei Grundprobleme der scholastischen Naturphilosophie*, Rome, Edizioni di storia e letteratura, 1951[2]. M. Wolff, *Geschichte der Impetustheorie*, Suhrkamp, Frankfurt 1978.

[26] Using 'force', 'mass' and 'velocity' here in the sense of classical mechanics is an anachronism, but it agrees with Aristotle's intentions. The same holds for the use of formulas in what follows.

medium and have proposed a different formula. One of their arguments was that the celestial spheres do not move in a medium, and nevertheless move with various, finite velocities. Philoponus argues that if motion were to occur in a void, it would not be instantaneous, but will take a certain time t_0 to cover a certain distance.[27] If motion occurs in a medium, the medium will resist the motion and therefore a certain extra time will be needed to cover that distance; this extra time will be proportional to the density of the medium. The total time needed to cover that distance becomes $t = t_0 + \tau \times D$, in which τ is a constant. Note that the corresponding Aristotelian formula would be: $t = \tau \times D$.

Ibn Bājja adopts Philoponus' idea and formulates it as follows: motion in a void is not instantaneous, and motion in a medium is subject to a retardation in comparison with motion in a void.[28] It is not clear from the text how one should interpret 'retardation'. One possibility is that in order to get the velocity in a medium one should subtract a certain amount from the velocity v_0 in void: $v = v_0 - \phi \times D$, in which ϕ is a constant. This is Moody's interpretation in the paper in which he claimed that Ibn Bājja was a precursor of Galileo.[29] Another possibility is that for motion in a medium an extra 'slowness' should be added to the 'slowness' in a void, where 'slowness' must be interpreted as the inverse of the velocity $1 / v$. Thus, 'slowness' is proportional to the time needed to cover a certain distance, and therefore Ibn Bājja's view in this interpretation is exactly the same as Philoponus' view.

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[27] Philoponus' theory is explained in his *Corollarium de inani*, which forms a part of his commentary on the *Physics*, see Philoponus*, in Phys*., 667,8-675,11. An English translation is available in Philoponos, *Corollaries on Place and Void*, *with* Simplicius, *Against Philoponos on the Eternity of the World*, translated by D. Furley and Wildberg, (Duckworth: London, 1991).

[28] Ibn Bājja, *Shurūḥāt al-samā` al-ṭabi`ī*, 142,10-144,16.

[29] E.A. Moody, "Galilei and Avempace," in *Journal of the History of Ideas*, 12 (1951), 163-193 and 375-422.

Ibn Bājja's works have not been translated into Latin, but his text about motion in a medium became known in the Western Middle Ages through a quotation by Ibn Rushd in his *Long Commentary on the Physics*, where Ibn Rushd defends Aristotle's view against that of Ibn Bājja;[30] this work of Ibn Rushd was translated into Latin. Thomas Aquinas adopted Ibn Bājja's view; he interpreted the text according to the second possibility mentioned above, which agrees with Philoponus' view. The subsequent discussion in the Middle Ages between the followers of Ibn Bājja (Avempace) and Aristotle continued up to Galileo, and has been investigated by various modern scholars.[31]

c) Ibn Sīnā on winds

Aristotle's theory of winds, explained in *Meteorology* II,4-6, contains a problem that was recognized by all commentators. His theory is that wind is dry exhalation which is dissolved from the earth by the sun's heat; it moves horizontally, because this exhalation is dragged along with the circular motion of the upper air, which in its turn is moved along with the motion of the lowest celestial (the moon's) sphere. The problem is that this would mean that wind would always have the same direction. The commentators were reluctant to give up Aristotle's theory of the origin of wind, although Theophrastus and al-Kindī mention the possibility that wind is moving air. However, they have tried to explain the directions of the various winds in several ways different from Aristotle.

Ibn Sīnā says that the rising dry exhalation, when it reaches the upper air does not partake in the circular motion of that air, but is thrust back by it and descends again; or it

[30] Ibn Rushd, *Long Commentary on the Physics*, 160C7-162C10.
[31] For instance, A. Maier, *Zwischen Philosophie und Mechanik*, Edizioni di storia e letteratura, Rome 1958, 244-274.

arrives in a cold layer of the atmosphere, becomes heavy, and descends again.[32] The descending dry exhalation meets other, rising exhalation and the combination of descending and rising motion results in a horizontal motion, the direction of which may vary. A similar explanation was proposed by Pseudo-Olympiodorus and it is one of the indications that Ibn Sīnā knew his treatise.[33]

d) Ibn Sīnā and his school on the heat in the tropics

In *Meteorology* II.5, Aristotle claims that the regions of the earth that are inhabitable are restricted to the area between the tropic of Cancer and the northern polar circle and the corresponding area on the southern hemisphere. Outside these areas the climate is either too cold (near the poles), or too hot (between the tropics). This was already disputed by Ptolemy, who knew that there were people living south of the tropic of Cancer. Ibn Sīnā differs even more radically from Aristotle. According to Ibn Sīnā, the climate in tropical countries is in fact the most moderate one on earth: there it is always like spring, and so it is the most suitable place to live [34] In the region north of the tropic of Cancer, the climate is more extreme: it is very hot in summer and very cold in winter. Fortunately, the bodies of the people living in those areas are adapted to these extreme circumstances. Ibn Sīnā relates that he was once in Bukhara, when the inhabitants were complaining about the hot weather at that time, and he saw a visiting Bedouin who was shivering wrapped up in clothes and crying for help.

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[32] Ibn Sīnā, *K. al-Shifā', Tab. 5 = Kitāb al-Shifā', al-Ṭabī`iyyāt 5: al-Ma`ādin wa-l-āthār al-`ulwiyya*, eds. A. Muntaṣir, S. Zāyid, A. Ismā`īl and I. Madkūr, al-Hay'a al-`āmma li-shu'ū n al-maṭābi` al-amīriyya, Cairo 1964, 58,4-59,11.

[33] Pseudo-Olympiodorus, *Tafsīr Alimfīdūrūs li-kitāb Arisṭāṭālīs fī l-āthār al-`ulwiyya tarjamat Ḥunayn ibn Isḥāq*, in A. Badawī (ed*.) Commentaires sur Aristote perdus en grec et autres épîtres*, Dar el-Machreq, Beyrouth 1971, 118,23-119,23.

[34] Ibn Sīnā, *K. al-Shifā', Tab. 5*, 26,14-30,15.

Ibn Sīnā explains the moderate climate in the tropics as follows: he first assumes that the heat on earth is determined by the height of the sun, or more precisely, by the maximum height the sun reaches during the day. Then it follows that at the summer solstice, when the sun reaches the zenith in countries that are on the tropic of Cancer, it is as hot there as it is at the spring equinox in the countries on the equator. However, the height of the sun is not the only factor. Heat is also accumulated, so that the longer the sun shines, the hotter the earth becomes. The sun approaches the tropic of Cancer slowly, therefore it is (almost) vertically above that region during a long time; the sun passes the equator quickly, therefore it is vertically above that region during a short time only. This effect is enhanced because in summer in the area of the tropic of Cancer days are long and nights are short, whereas on the equator day and night are of equal length. Thus, more heat is accumulated in summer in the region of the tropic of Cancer than in spring in the region of the equator and therefore the heat is more extreme around the tropic of Cancer than around the equator.

This view of Ibn Sīnā was shared by Abū l-Barakāt al-Baghdādī, but not by Fakhr al-Dīn al-Rāzī. The latter showed that heat must be stronger at the equator than at the tropic of Cancer.[35] On the equator the sun is never far from the zenith throughout the year, so that heat will accumulate to a larger extent there than around the tropic of Cancer, where the sun is near the zenith only once a year. The effect of longer days will have not much influence on the heating of the earth, since at the poles the day lasts for six months, and still it remains very cold.

e) Halo and rainbow

[35] Fakhr al-Dīn al-Rāzī, *Kitāb al-mabāḥith al-mashriqiyya fī `ilm al-ilāhiyya wa-l-ṭabī`iyyāt*, vol. II, Teheran 1966, 201,18-203,8.

Aristotle discusses the halo and the rainbow in *Meteorology* III, 2-5. He maintains that these phenomena are caused by reflection of light of the sun or the moon against small waterdrops in a cloud. In the case of the halo this cloud is located between the observer and the source of light; in the case of the rainbow the cloud and the source of light (sun) are in opposite directions in relation to the observer. He does not explain why in the case of the halo reflection only occurs at certain points of the cloud, not at all points, so that the halo appears as a circle on the cloud, not as a whole bright cloud. Aristotle correctly explains why the rainbow is a semicircle when the sun is at the horizon, and becomes part of a semicircle when the sun rises above the horizon. He does not give a correct explanation of why only (part of) a circle on the cloud appears colored and not the whole cloud. Instead, he states that reflection occurs at those points of the cloud that are such that their distances to the observer and to the sun have a fixed ratio c, and he describes a method to find the points of reflection on the cloud when c is given. As for the colors, Aristotle tried to give an explanation in terms of weakening of visual rays, but he did not arrive at a consistent result.

Ibn Sīnā says he is not satisfied with Aristotle's theory of the rainbow. His dissatisfation partly stems from his own observations of the rainbow .[36] His dissatisfation partly stems from his own observations of the rainbow. He has observed rainbows without a cloud being present. Also, he has observed a rainbow that appeared partly in a cloud around a mountain, and partly in the air with the mountain as a background, and even a rainbow in a cloudless sky, with a mountain as a background. He concluded that a cloud is not necessary for a rainbow. A rainbow is formed when there is moist air

[36] Ibn Sīnā, *K. al-Shifā', Tab. 5*, 50,8-56,2.

containing many small watery particles, like a spray, and when behind this moist air there is a dark body. Reflection occurs in the waterdrops, due to the presence of the dark background. like reflection occurs in glass when it is covered on one side. The background may be formed by a cloud, but also by for instance a mountain. Ibn Sīnā further says that Aristotle's explanation of the colours is nonsense, but admits that he does not know a correct explanation.

Ibn al-Haytham did not write a commentary or treatise on meteorology, but his field of research was optics. He extensively studied the reflection and refraction of light rays and in his *Treatise on the Burning Spheres* he studied the course of rays through a glass sphere that refracts incident rays to certain (burning) points behind the sphere.[37] He also wrote a special treatise about the halo and rainbow, but despite his knowledge of refraction he explained these phenomena, following Aristotle, by reflection against a cloud. However, he tries to explain why reflection occurs at certain points of the cloud only, so that these phenomena appear as circles, and he uses the law of reflection of light rays in this explanation. This explanation is adopted by Ibn Rushd.[38]

Significant progress in the explanation of the rainbow was made in the 14th century by Kamāl al-Dīn al-Fārisī.[39] He studied the paths of light rays through a transparent sphere more extensively than Ibn al-Haytham had done. He explained the rainbow by successive refraction, reflection, and refraction of sunrays that enter

[37] This treatise has been edited and translated by Rashed, see R. Rashed, *Géometrie et dioptrique au Xe siècle. Ibn Sahl, al-Quhi et Ibn al-Haytham*, Les belles lettres, Paris 1993.
[38] Ibn Rushd, *Middle Commentary on the Meteorology = Talkhiṣ al-āthār al-`ulwiyya*, ed. J.A. Alawi, Dār al-gharb al-islamī, Beyrouth 1994, 141,10-143,18 and 160,15-163,9. Id., *Short Commentary on the Meteorology = Kitāb al-āthār al-ʿulwiyya*, in *Rasā'il Ibn Rushd*, Dā'irat al-ma`ārif al-`uthmāniyya, Hyderabad 1947, 61,14-64,4 and 68,10-72,17.
[39] See R. Rashed, "Le modèle de la sphère transparante et l'explication de l'arc-en-ciel: Ibn al-Haytham, al-Fārisī," *Revue d'Histoire des Sciences*, 23 (1970), 109-140, reprinted in Id. *Optique et Mathématiques*, Ashgate Publishing Ltd, Aldershot 1992 (Variorum, Collected Studies Series 378).

waterdrops in a cloud. The secondary rainbow arises when the ray is reflected two times. This correct principle was found at almost the same time, independently from Kamāl al-Dīn, by Dietrich von Freiberg.

> If it should seem to somebody that some of the things which we have said require further and more precise inquiry, we should not, on account of a slight difficulty that might appear in it, give up the care and effort we have expended in examining all this doctrine, nor should we shrink from it and desert it, but we must hold firm to this opinion and uphold it, since it is, of all opinions held about God Most High, the best and the fittest to be regarded as sound. – Alexander of Aphrodisias, *On the Cosmos* 147[1]

> And so, perhaps, it may seem to be a mark of much foolishness or much zealousness to attempt providing a proof about some things, even about all and leaving nothing out. Yet, it is not fair to blame everyone alike, but one must look at the reason for saying it, at what it is, and furthermore how it contributes to conviction, whether in a human way or more strongly. And so, if someone should hit upon the most precise necessities, we should then give thanks to the discoverers, but for now we need to state what appears. – Aristotle, *De caelo* II 5. 287b28-a2 [2]

Aristotle's accounts of how the heavenly bodies work are rich in gaps and apparent contradictions, lush fare for any commentator. Yet, there is something odd in this, something well worth grappling. The traditional job of the commentator is to fill in gaps and to resolve apparent contraditions. There are many avenues of this. We may hunt for a plausible theory consistent with what else we know of Aristotle, and if the plausible theory is one's own, so much the better. The gap is thereby filled. Apparent contradictions are trickier. One may always emend the text, a procedure that is often necessary. Especially since 1923, it has been fashionable to look at apparent contradictions as evidence of a development of Aristotle's views, and this has, I suspect, encouraged some to be particularly zealous in hunting for them.[3] The traditional way of dealing with apparent contradictions remains to seek out subtler and subtler interpretations of the text to ameliorate any difficulty.

Nonetheless, it is unreasonable to expect that Aristotle noticed every conflict in his views, anticipated every gap, or made every very subtle distinction that his successors find in his texts. Readers today have an advantage over Aristotle and his contemporaries, the advantage of

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[1] Trans. Genequand (2001, 123-4).

[2] The context is explaining the direction of rotation of the heaven, but it is a common enough remark in *De caelo*.

[3] For theology, e.g., Jaeger (1923/1948), Guthrie (1933, 1934, 1939), Easterling (1961 and 1976), Kouremenos (2010). These accounts depend on distinuishing an early, lost *De philosophia* and a late, post 330 BCE *Metaphysics* XII 8. Between are, principally, *De caelo* I-II (earlier), *Physics* VIII, *On the Movements of Animals*, and *Metaphysics* XII 6-7, 9-10 after *Physics* VIII to which it probably refers, with *De caelo* being next after *De philoophia*. Kouremenos breaks up *De caelo* I-II into a pastiche of works of different periods. It is worth noting that it is more difficult to determine astronomical theories in the fragments of *De philosophia* than one might think, given that one has no idea whether Aristotle has simplified his views for the sake of a popular presentation, or what was the context was of extant citations, whether the full argument is given, and sometimes even whether the quoted text is merely an aside. As to *Metaphysics* XII 8, the claim that it was written after 330 BCE is based on dubious evidence. These, however, are all issues for a separate discussion.

better astronomy and two thousand years of very meticulous and imaginative readings of his texts. Whatever desires medieval interpreters such as Averroes may have had to preserve the core of Aristotelian teaching, they still had Ptolemaic astronomy and a thousand years of subtle readings of Aristotle. If our goal, however, is merely to understand Aristotle, this can become a disadvantage. We need to be able to stand back from this interpretative history and ask whether our readings are too subtle, our distinctions too refined. In this we are different from an interpreter such as Averroes, whose goal, like that of other fundamentalists, is to interpret Aristotle as literally as possible in order to build an Aristotelian philosophy that he can endorse, though certainly with greater moderation than some.

These considerations give rise to a methodological theme I would also like to bring to the table, the difference between Aristotelianism and Aristotle. This is a big issue, but one that is particularly important in discussing the unmoved mover (hence UMM), here a metonymy for the celestial system. For the first 1700 years of Aristotelian studies, it was of some importance how to elaborate and make coherent Aristotle's account of celestial motion. Big theological issues were at stake, God and what God does. So the effort to find a coherent interpretation of Aristotle, compatible with the texts, made sense, even if it might drive some, such as Averroes to reject the best contemporary astronomy for one barely coherent.[4] In a world where an Aristotelianism may well be the best scientific and philosophical standpoint available, it is a valuable way of doing philosophy. In a world where such an Aristotelianism can play no role in science, one might well question what the enterprise of Aristotelianism is. What is the point of chasing after a coherent extension of a bad theory unless it provides some historical illumination?

My goal here is merely to interpret Aristotle. Even if they are enthusiastic about the overarching philosophy of the study of nature that we find in Physics II, no one does, or at least no one should find his arguments in *Physics* VIII or *Metaphysics* XII sound. For they are unsound. The conclusion is false. There is no unmoved mover (UMM). So our goal must be

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[4] Cf. Sabra (1984) and, in particular, the hopeless attempt of Averroes' contemporary, al-Bitruji (Goldstein, 1971) to revive a homocentric system of spheres based loosely on Ptolemaic astronomy, but resulting, inter alia multa, in absurd latitudes. Averroes most famously is sceptical about having separate spheres for the fixed stars and for the diurnal motion, which is needed to account for precession, as well as any further modifications to account for the misperceived variation in precession (trepidation). This is not to say that he rejects the phenomenon, merely that his objection needs to be taken into account in constructing a theory, something that Averroes desired but never accomplished (1984, pp. 1663-4). Cf. Averroes, *Epitome* (2010), 146-7, In the *Great Commentaries on the Metaphysics* (1984, cf. 1675, 1679) and on *De caelo* (2003b, text 67, p. 404), he merely reports the theory of trepidation as an Iberian theory and as one that is thought by his contemporaries to go back to Babylonian antiquity, but without criticism. However, cf. Endress (1965, p. 40, cf. 44), who cites the short commentary on *De caelo* (II 6) for Averroes objecting to trepidation, and especially Hugonnard-Roche (1984, 19-25, esp. p. 24) for the oddities of this text. Is Averroes rejecting precession or merely trepidation? If either, it would seem to be the latter. For his objections to epicycles and eccentric circles, cf., inter alia, Averroes (2003b, text 35, p. 331), Averroes (1984, 1661-2), as well as Carmody (1952) and (1982, 28-32).

something else. Even finding a maximally coherent but still unsound argument may lead us to Aristotle. OR it may lead us to something else, let's call it Aristotelianism.

So my goal will be different from what people usually do.[5] It will be to highlight the gaps in Aristotle's account. This is not to say the gaps cannot be filled. We all know that that is possible. But my question will be always, are we filling the gaps with Aristotle or with Aristotelianism? Although my focus will be distant from the commentary tradition, it will form an important background to my enterprise.

There are three ways that gaps might occur in any historical text, and as interpreters, I believe that we should always have them in mind:

1. The gap is ours. It results from centuries of careful readings of the text and is based in our inability to read the text without seeing the gap. (the anachronistic gap)
2. The gap is in the philosopher. He saw or ought to have seen the puzzle, but for whatever reason didn't deal with it. Here, it is perfectly possible that the urgency of filling the gap is really due to our concerns and not the philosopher's, whether from reading the text for so many centuries or from our philosophical concerns. (the culpable gap)
3. There is no gap. The philosopher didn't explain the apparent gap clearly enough for us because he took the issue as so obvious as not to need further explication, or he dealt with it in discussions that have not survived. (the merely apparent gap)

I assume that most of us think that we are dealing with (3), merely apparent gaps, when we interpret Aristotle. Often we are really dealing with (1) or (2), anachronistic or culpable gaps.

Sometimes a gap appears to us because we yearn for a thick text, while, for reasons that are sometimes even obvious to us, the philosopher has chosen to write something minimal and non-speculative, something that fits within the parameters he has set himself, or even what he thinks is intellectually safe. Aristotle's extended argument for the existence of an UMM of the kosmos in the *Physics* VIII fits this picture. I note that Andrea Falcon points out that Aristotle frequently reminds us of the remoteness of the heavens and the difficulty of getting knowledge about them, so that we do not have certainty about these matters.[6] We expect limitations in his story. The account of mind in *De anima* III 5 is another obvious example. It would be sane in contemplating the history of readings of these texts to keep in mind our and our predecessor's yearnings for detail and expliction and Aristotle's caution in avoiding it.

In this paper, I shall look at puzzles that I think illustrate this interpretative problem. For I think it is, at the least, an interesting exercise in reading Aristotle to attempt to aim for interpretations that sift out the three sorts of gaps in his texts. It would be another exercise,

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[5] For a notable exception, cf. Laks (forthcoming, 2014), who is careful to distinguish what we can gather from the text and what is left to commentators.

[6] Falcon (2005, esp. 85-112); cf. also Laks (2000, esp. pp. 220-1) and Lloyd (2000, 245-6) on the limits of Aristotle's enterprise.

equally important, to try to classify how we find gaps in his texts. Here my interest, however, is mainly an attempt to look at the limits of interpretation.

My principal thesis is that Aristotle makes no attempt to fill the biggest gap, that between the *Metaphysics* and *Physics* accounts. The *Metaphysics*, as has traditionally been held, is about teleology, the *Physics* account about pushing. I will focus more on the *Physics* account because it strikes me as more blatantly problematic.

1. Quick Survey of Aristotle's Mature Cosmology.

The basic background to any astronomical theory associated with the Academy or Lyceum is what we could call the 'two motion model'. Basically, the heaven is layered with the fixed stars imbedded on a very wide band or a sphere. Below the stars are planetary or wandering stars: the planets proper, the sun, and the moon. The moon is lowest. These are either on bands (Plato) or on spheres (Eudoxus and Aristotle). Whether conceived as bands or as spheres, there is an axis (at least somewhat imaginary) for each sphere or band, with poles as the endpoints. If the container of the star is a sphere, the axis is a diameter of the sphere, and the poles are endpoints of this diameter on the sphere. The axes for the second motion of the planetary stars are congruent and inclined at about 1/15 of a circle to the axis of the band or sphere of the fixed stars. The band or sphere of the fixed stars rotates once a day about its axis, east/west with a uniform, geocentric motion and carries with it the poles of every band or sphere down to the moon. The bands or spheres of the planetary stars have their own geocentric motion in addition, that rotates west/east about their repective axes, with the slower motion, 29 ½ days for the moon, 365 days or thereabouts for the sun, etc.

Just as Plato does in the *Republic*, *Statesman*, *Timaeus*, and *Laws*, Aristotle assumes the the two motion model wherever it comes up, especially, *De caelo* II, *De gen. et corr.* II 10, Met. XII 5, 8. However, in addition to the two motions, everyone adds several more motions that are dependent on these, most obviously for Mercury and Venus, whose ecliptic movement is the same as the sun's, but oscillating before and after the sun. As a result, in its most primitive form, it is possible that their ecliptic motion was not treated as a regular rotation. Eudoxus, who was about a decade older than Aristotle, developed the two movement model as a system of two regularly rotating spheres where the diurnal sphere caries poles of the ecliptic sphere. To account for various anomalous motions of a planetary star, he then put another inside the ecliptic sphere with its poles carried by the rotating ecliptic sphere, and another in that, and so forth, as needed. The planetary star would be on the last sphere.

It is likely that when Aristotle wrote *De caelo*, Eudoxus had not worked out the model that we find Aristotle attributing to him in the *Metaphysics*. However, the model as worked out

then would have at least accounted for the anomalous motions of Venus and Mercury, the minimum for any model that assumes all celestial motion is circular, regular, and geocentric.

In the full model, as reported by Aristotle in *Met*. XII 8, each of the planetary stars then has various irregular motions, which need to be modeled. To do this, Eudoxus proposed that the actual motions were given by a system of nested spheres which have the following properties:

1. The earth is the center of the system.
2. Each sphere rotates about the center of the system.
3. The rotation of each sphere is even, i.e., uniform.
4. The spheres are nested (this follows from (1) and (2)).
5. The poles of rotation of each sphere are fixed to the sphere above. To make this non-trivial, with one exception in Aristotle's version of the system, the poles of one sphere cannot be fixed to the poles of the next higher sphere. Thus the poles of the lower sphere are moved in a circle by the next sphere up, while the sphere itself has its own motion.

Eudoxus assigns to each planet a third sphere attached to the second sphere and a fourth sphere attached to the third, with the planet on the fourth sphere, but for the sun and moon, he added only one sphere. Our knowledge of the details of the system are somewhat splotchy, and the motivations for certain aspects are really a matter of conjecture.[7] In my opinion, only the moon's system is perfectly known, that is if my reconstruction is right.[8] Sometime before Aristotle wrote *Metaphysics* XII 8 and probably after he wrote *Physics* VIII, Callippus modified the system, although Aristotle expresses doubts about two of his five modifications. Table I presents what we know of the Callippan system:

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[7] The standard modern interpretation derives from Schiaparelli (1874). Here, the planet is on the equator of the last sphere, while the periods are always relative to a point on the next higher sphere. Ido Yavetz (1998) has proposed that the planet is not necessarily on the equator and that periods for spheres 3+ are relative to a point on the ecliptic. I do not want to discuss this issue; however, I believe that it is inconsistent with Aristotle's revision (since the first rewinding sphere will not move at all and so will require an unmoved rester).

[8] Mendell (1997) and Mendell (2000). Yavetz (2003) criticizes this reconstruction. Bowen (2013, 267) appears to accept the reconstruction in principle, at least as fully coherent with the text, but criticizes it for assuming that Simplicius understands that every spherical motion decomposes into a moving hippopede. However, I do not think that I made this claim. Rather, the observation was a heuristic for understanding the relations between the traditional interpretation and the one I proposed. I do not think that Simplicius would have understood the point and have no view as to whether Eudoxus did. However, I became aware of Bowen's fascinating book too late to take it into account in my discussion. I regard Simplicius as a reporting what he has read, not what he has understood.

Table I: Callippan system assuming that it preserves Eudoxan features[9]
The Callippan additions accepted by Aristotle are in red; those doubted in blue

Stars	$Sphere_1$ (celestial equator)* westward	$Sphere_2$ (ecliptic) eastward	$Sphere_3$	$Sphere_4$ angles unknown	$Sphere_5$ angles unknown
Fixed Stars*	period: 1 day				
Saturn	period: 1 day (uses sphere of fixed stars?)	period: 30 years	⊥ to $equator_2$ period: ~13 months	period equal and opposite to $Sphere_3$	
Jupiter	period: 1 day	period: 12 years	⊥ to $equator_2$ period: ~13 months	period: equal and opposite to $Sphere_3$	
Mars****	period: 1 day	period: 2 years	unknown	unknown	unknown
Venus****	period: 1 day	period: 1 solar year	unknown but synodic period is 19 months	unknown	unknown
Mercury****	period: 1 day	period: 1 solar year	unknown but synodic period is 110 days	unknown	unknown
Sun**	period: 1 day	period: unknown	small angle to $equator_2$ period: unknown (eastward)	unknown	unknown
Moon***	period: 1 day	period: probably draconitic month + siderial month	period: probably zodiacal month - draconitic month (westward)	unknown	unknown

*Does Callippus know the difference between the sidereal day and the solar day (366 ¼ sidereal rotations in 365 ¼ solar days)? He ought to, but that does not imply that he does. If so the period of $sphere_1$ is less than a solar day (e.g., 365 ¼ / 366 ¼ solar days) and the combined period of the remaining solar spheres is, then, 366¼ periods of $sphere_1$. We have no evidence for the distinction in the time of Callippus.

**The periods of the spheres 2 to 5 (or 3) for the sun must add up to a period of 365 5/19 days or possibly 365 ¼ days.[10]

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9 Mendell (1997)

10 The year in the calendar of Callippus amounts to 365 ¼ days. However, Simplicius, *In de caelo* 497.18-22, tells us that the model was supposed to explain the seasons of Euctemon and Meton, which would have meant a year of 365 5/19, i.e., 6940 days in 19 years (cf. Geminus, *Elementa astr*on. 8.5).

***The periods of the spheres 2 to 5 (or 3) for the moon must add up to 19+235 cycles in 19 years. I have argued that for Eudoxus, if we take the draconitic period to be δ and the longitudinal period to be λ, then sphere$_2$ has a period that is the sum of the motions, λδ/(δ+λ), and sphere$_3$ has period δ in the opposite direction, consistent with our main source, Simplicius.
****Callippus added a sphere to the Eudoxan models for Mars, Venus, and Mercury. We do not know if he preserved any of the elements of the Eudoxan models for the third to fifth spheres. However, the models need to create an anomally that preserves the synodic periods. Simplicius gives Eudoxus' synodic period for Mars as 260 days, way too small and hence an invitation to commentators' various emendations.[11]

Since we have no account of the physics of the Eudoxus and Callippus, it would be idle to speculate on whether they even had one. In *De motu* 3.669a17-27, Aristotle mentions people who believe that the poles of the sphere of the heavens has a power of rotation, and others (a23-b12) who hold that the center of the universe has this power. He may also allude to this position in *Physics* VIII 10.267b6-9. It is as possible that he is referring to Eudoxus for one of these as to anyone else who might have postulated at least one heavenly rotating sphere.

Aristotle's modification of the Eudoxan systems unifies them in one system. To do this, he introduces 'unwinders', extra spheres after the last Callippan sphere where, each in turn, reverses the motion of an earlier sphere, from the last to the second (here the first Aristotelian sphere will have its poles adjacent to the poles of the last Callippan sphere), so as to have the last sphere in the system not influence the motion of the first sphere in the next system. In his system, as in the Eudoxan/Callippan systems, an upper sphere only revolves the poles of the sphere next below. The period of rotation is independent. Hence, the goal of the unwinding is to have a last sphere with its poles on the axis of the first sphere. To keep it simple, if we have 4 spheres, A, B, C, D, we need first to unwind D with D' so that the poles of C' are on the axis of C, then to unwind C with C' so that the poles of B' are on the axis of B, and finally to unwind B with B' so that the poles of the next sphere A' are under A. However, we do not need to unwind A, as Jonathan Beare has argued,[12] since the poles of the next sphere will be on the axis of sphere A. A' is actually the first sphere of the next system. Remember we are only restoring the

[11] For a discussion, cf. Mendell (1998, 213-216).

[12] Beere (2003, 8-9). In adopting this interpretation, I am skipping over many questions, for which cf. Bodnár (2005). The core difficulty is how to understand the period and motion of the sphere. If the sphere does not carry a rotation from a previous sphere, what work is its motion, or, rather, what is its state of rest? As I understand it, the orientation of one rotation is relative to a point on its containing sphere, with the first sphere relative to an absolute position. In any case, there needs to be some point on some sphere (including the earth) that is taken as fixed, or we won't be able to define regular motion at all. It may be a case that Aristotle and his astronomical colleagues made some assumptions that were self-evident to them but not to us or that Aristotle had not thought it through. So it appears that the either the first unwinder does not rotate or the sphere$_1$ of a system does not.

positions of the poles. Again, I assume that Aristotle knew some version of the Eudoxan system when he wrote *De caelo*, although this has recently been disputed,[13] and a fortiori that he knew it when he wrote the *Physics*. If so, the reason why Aristotle only discusses the first sphere could be that it is necessary and sufficient for his argument.

It is of some significance for the commentary tradition that the only known texts describing in detail the systems of Eudoxus and Callippus are Eudemus, *History of Astronomy*; depending on Eudemus, Sosigenes, *On unwinder*s; and, depending on Sosigenes, Simplicius, *In De caelo*. Dercyllides (1st cent. CE), as cited by Theon of Smyrna, may have had access to Eudemus and have described more than Theon reports, while Proclus cites Sosigenes. It is notable then that the two authors who know Sosigenes were members of the late Academy. This may be the only place in late antiquity where Sosigenes' book was known. Averroes, *Great Commentary on the Metaphysics* 1663, says that Alexander and Themistius acknowledge that the knowledge of the old astronomy passed away, so that one cannot understand authoritatively what Aristotle says. It would surprising if Themistius, who often displays math phobia, had anything detailed to say about Eudoxan systems beyond the minimum from Aristotle.[14] However, even though Averroes may not have had Alexander's commentary to *Met*. XII 8, where he could have expected such an account,[15] it is also plausible that Alexander did not have access to Eudemus or Sosigenes.[16] Averroes does not have access to Simplicius' commentary on *De caelo* II 12, our principal source today, or else he would have mentioned it in his *Great Commentary on De caelo* and might even have understood the system. It is also clear that even though Averroes does not understand Aristotle's system of unwinders,[17] Alexander in his lost commentary on *Metaphysics* Λ 8 did understand it somewhat[18] It is sometimes thought that the astronomical Sosigenes is the

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[13] Easterling (1961) proposes that Aristotle has in mind in *De caelo* II 12 the Eudoxan theory with Aristotle's rewinders. Kouremenos (2012) regards II 12 as a later interpolation. My own suspicion, on the contrary, is that Aristotle is using an earlier version of the Eudoxan theory.

[14] Themistius, In *Met*. XII 26.24-28.7, has nothing that cannot be found in Aristotle, including the totals for the spheres of 55 or 47. One can only infer that he has nothing further to say on the subject.

[15] So Genequand (in Averroes (1984, p. 7). So one might suppose that Alexander reported a detailed account of Eudoxus here. Even so, one would have expected some indication of detail in some other discussion available to Averroes.

[16] Bodnár (1997, 202-3) comes to a different conclusion; however, it is important that his concern is whether Alexander endorsed some version of homocentric spheres, which is possible, albeit without a reasonable astronomical model to back it up. For there was none in the 2nd cent. CE.

[17] Cf. Gennequand in Averroes (1984, 54-5) and *Great Commentary on the Metaphysics*, 1662-76 passim.

[18] One can see this through Averroes' description of Alexander's position (*Great Commentary on the Metaphysics*, 16673-5) that the basic details are right, namely that the poles of the each unwinder coincides with the pole of the sphere it unwinds. Averroes objects to this for its doing exactly what Aristotle needs it to do, namely that it would produce no net motion. However, one could infer this merely from Aristotle's own description, even if Averroes does not so infer.

Sosigenes who taught Alexander.[19] Perhaps, we should be sceptical that they are the same or at least conjecture that Alexander may not have known all his mentor's oeuvre. If *On the Cosmos*, which only survives in Arabic, is by Alexander, this would also account for the absence of any description of the system in that work as well.[20] In other words, understanding of Eudoxan systems in the Middle Ages probably depends crucially on the availablity of Simplicius' commentary, or, less likely Sosigenes.

The principal puzzles in Aristotle's cosmology concern how the sphere are made to move as they do. Before ascending to the lofty realm, we shall look at some lesser ones. I shall divide my puzzles into four sets, those concerning how we are affected by and see the heavenly realm, the physical structure of the spheres, what makes them rotate, and finally the state of the great roller. I will not pretend that my choice of puzzles will be exhaustive.

§2. In the Light and Warmth of the Sun

When we stand in the sun, we get warm, and, at a minimum, its positions are associated with the seasons. We reasonably conclude that the sun causes our warmth and the seasons. Moreover, it is very bright. Enough of the silly and obvious. There is a point, however. The most natural view about the sun is that it is similar in its nature to the terrestrial stuff that has the same effect, fire. Aristotle rejects this conclusion, because he holds that simple bodies can only have one natural movement, that the natural movement of fire is up, while the natural movements of heavenly bodies, all of them, are either in a circle or arise from a combination of regular circular motions. For only a uniform, circular motion can be eternal and uninterrupted, necessary conditions for the world to be at all.

Nonetheless, although the stars are all made from the same matter as the surrounding carrying transparent spheres,[21] the sun is yellowish; Mars is red;[22] most other stars are white, the fixed stars twinkling due to their further distance; the planetary not, due to their nearness,[23] while the moon has its own odd, but unchanging variegations.[24] Furthermore, as we shall see, all stars can heat some region of the realm just below the moon. If the stars are spheres that do not rotate

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19 So Moraux (1984, 344-58).

20 Cf. Genequand (2001, 5).

21 *De caelo* II 7.289a13-9.

22 In fact, he says that the sun is λευκός (*Meteor*. I 3.341a35-6), normally translated as 'white', but meaning perhaps, 'pale' or 'bright'. I assume that Airstotle would accept something like the colors that Plato ascribes to the planetary stars at *Republic* X 616E-7A.

23 The planets do not twinkle because they are near at *An. Post*. A 13.78a29-b3 to which *De caelo* II 290a18-24 adds that the visual ray to the fixed stars is not strong and quivers. However, this implies that the visual ray extends to both planetary and stars and not to an effect of the stars in the combustible realm.

24 The face of the moon appears at *De caelo* II 8.290a24-9, as part of the argument that stars do not roll.

but are merely imbedded in the larger spheres that rotate around the earth,[25] and these rotations are completely uninhibited,[26] why do the stars present appearances at all in the world below and how do they manage to heat the world below? Aristotle's solution in *De caelo* II 7.289a19-35 raises more questions than it solves:

> Heat and light come about from them (stars) when the air is rubbed by their locomotion. For the movement by nature ignites even sticks, stones, and iron. And so it is more reasonable that it should inflame what is nearer to the fire, and air is nearer. For example, in the case of moving arrows too, since these are ignited so as to melt lead balls. And since these are ignited, it is also necessary that the air in a circle about them undergo this same thing. And so these same things are heated up due to their locomotion in the air which becomes fire due to the banging by means of the movement.
>
> Each of the upper things move-locally on a sphere, so that they are not inflamed, while the air that's under the sphere of the circular body must be heated when that [sphere] moves-locally, and most of all by this [sphere] to which the sun happens to be fixed. Hence, when it is becoming near and is emerging and is above us heat comes about.
>
> And so let these be said about them (the heavenly bodies), that they are neither fiery nor on fire.

In *Meteorology* I 3.341a12-36, we get a similar account, perhaps with more details, namely why the principal heater is the sun.

> It is more appropriate to speak about the heat that comes about, which the sun provides, by itself and precisely in the [books] *On Sensation* (for heat is a sort of property of sensation), but we also need to state now the reason why it comes about given that those things are not of this sort in their nature. We see, in fact, that motion can disperse air and ignite it, so that things that are moving-locally often apparently melt. And so the motion of the sun alone is also adequate to provide warmth and heat coming about. For it is neceessary that it be fast and not far. And so the motion of the stars is fast, but far, while that of the moon is below but slow. The motion of the sun has both of these adequately. And when we

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[25] *De caelo* II 11.8.290a24-35.

[26] *De caelo* II 9.291a9-26. Aristotle argues that the heavenly bodies do not make a noise, which which would require that were a πληγή between them. the Oxford translation translates πληγή as 'friction', but the word normally means something more like 'banging'. Yet, at II 7.229a27-8, something moving fast through air becomes fire by its motion due to πληγή. So it is natural for us to understand this as friction. If so, Aristotle is taking an ordinary word and modifying its meaning to introduce a new concept. It would have been nice if we had more direct evidence of this. Here, the difficulty is that Aristotle does have a word that fits 'friction' much better, namely, τριβή (rubbing), which does produce heat. Cf. *Met*. VII 7.1035b25-6, as well as *De caelo* II 7, discussed here. So one may well suspect that reading 'friction' is a rational reconstruction that could be alien to the text. It might be better to say that the heavenly bodies do not bang one another. 'Impact' of Legatt (1995) and Guthrie (1939) is better but less vivid. A similar point may be made about the Oxford translation of the *Mechanica* as 'to encounter friction' προσκρουειν (8.852a7) and προσκοπτειν (8.851b23, 11.852a31-3) but 'collision' at 15.853a3.

> grasp something similar from what happens around us, it is reasonable that heat should become more so when it is together with the sun itself, For here too the air that is near to things moving-locally by force become very hot. And this follows reasonably, since the motion of the solid disperses it. And so for this reason, heat comes to this place, and also due to the fact that the surrounding fire often sprinkles the air by the motion [of the stars] and moves below by force. Shooting stars are also adequate evidence that the upper place is not hot nor ignited. For it does not happen there, but below. And yet what moves more and faster is ignited faster. In addition, the sun, which is most of all thought to be hot, appears white, although it is not fiery.

In other words, every star is capable of affecting the combustible realm, can cause it to heat and to light up. The sun is particularly effective in producing heat because it optimizes speed and distance. The appearance of the sun comes in as an afterthought, just as it is dropped from the parallel discussion in *De caelo*. The air in this context is gas that exists between the earth and the sphere of the moon and not the element, air; it comprises all the sorts of 'exhalations'. In particular, just below the moon is the combustible sphere, which consists primarily of an exhalation that is hot and dry, but potentially fire.

We assume the heavenly structure presented in *De caelo*,[27] namely that there is no void and that the upper realm is formed by gapless concentric spheres, that these concentric spheres are composed of the first element or aether, that the entire system of motions is eternal. Just below is the combustible sphere where all the non-locomotive action takes place. The sphere of the moon touches the combutible sphere, the sphere of the sun is above it, with the spheres of the fixed stars highest, and we may presume that Aristotle supposes at least as much layering as we find in Plato's *Republic* and *Timaeus*. So, on any account, we can wonder how the fixed stars as distant as they are from the fiery sphere manage to affect it so as to produce rubbing and light. It is only important that the spheres of the planetary stars be between the moon's and that of the fixed stars, although Aristotle in fact places them above the sun.

In the course of *Meteorology* I 4-8, we learn that the combustibility of the hot and dry exhalation is responsible for the primary sub-lunary phenomena, shooting stars, comets, the Milky Way, torches, red sky, etc. However, the tail of a comet and the Milky Way are formed by reflection in the way of a halo (for which see *Meteorology* III 3), where in the case of the Milky Way, the stuff around the great circle of the heaven where it's formed has been squeezed.

So we will want Aristotle to explain to us the following phenomena and how they are coherent:

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[27] Kouremenos (2010) has recently argued that some of *De caelo* presupposes a different celestial structure. Given that the *Meteorology* presupposes that the planetary stars have multiple motions (cf., e.g., I 1.339a31-3, 3.339b17-19, 8.346b10-13) and are layered in distances and that the combustible realm is a sphere below, it is unimportant for my present purposes whether some of *De caelo* might not have this cosmology. It is enough that *De caelo* II 7 and *Meteor*. I 1-8 assert the same theory about kosmic warming.

Data for puzzles about appearance:

1. All stars, fixed and planetary light up, i.e. appear bright (white or some other color).
2. The fixed stars twinkle, and the planetary stars do not.
3. The rest of the heavenly spheres are invisible to us or at least appear as dark or transparent.
4. The moon gets its light from the sun.
5. The moon is variegated in its appearance.

Data for puzzles about heat:

6. Each star is capable of causing a region of the combustible realm to ignite.
7. The sun because it is nearer than the stars above and closer to the combustible realm than the moon below heats most.
8. The moon heats according to its seasons
9. The non-starry spheres, whether or not they carry stars on them, are not capable of causing a region of the combustible realm to ignite.

Common data for puzzles about light and heat:

10. At least one sphere of aether separates every star except the moon from the combustible realm, in the mature theory of *Met*. XII 8, the sun will be separated by either 5 or 9 spheres.
11. The rotation of each sphere of aether relative to the surrounding must lack void and be unimpeded.
12. Only the moon is contiguous with the combustible realm.
13. The mechanism for causing light and heat is by the motion of the star causing the combustible exhalation (also called air) to be rubbed and heated.

There are then two basic puzzles:

The Light and Heat Puzzles:

a) How do stars, except for the moon, which are vastly separated from the combustible realm, and whose only given motion is their circular motion, manage to cause something distant from them to be rubbed hot, without affecting anything in between?
b) What is different about supra-lunary stars such that they cause light and heat while the geocentric spheres, including those they ride, do not?

Additionally, we have specific puzzles:

The Light Puzzles:

c) How is it that the moon, which causes combustion in the combustible realm, does not cause light?
d) How does the sun light up the moon, i.e. light up a region below the moon, especially when it is at the opposite end of the heaven, but does not light up other regions of the heaven; in other words, why doesn't the entire night sky look like the moon?
e) If fixed stars twinkle because they are further away than the planetary stars, which do not, and the light ray from the eye to the fixed star is longer (*De caelo* II 8.290a18-24), but the actual lighting up is in the combustible realm, then why

would it be the case that the distance of the light ray from the eye to the planetary star is smaller than that to the fixed star?

f) Perhaps less perplexing, if Mars' disappearing into the shaddow part of the moon and reappearing out of the bright side is evidence that Mars is further away (De caelo II 12.292a3-6), then why doesn't Mars' influence not pass through the dark part of the Moon but does pass through the sphere in which the Moon is imbedded.

g) Why do stars have different colors, i.e. why do they affect the combustible realm differently?

The Heat Puzzles:

h) Given puzzle (a), why doesn't the moon cause more heat than the sun, despite what Aristotle suggests?

i) Why isn't the rubbing of the combustible realm an impediment to lunar motion?

The principal puzzle here is (a), which goes back to Alexander's commentary on *De caelo* (cf. *In Meteor*. 18.8.-19.27). He proposes an elaborate, but plausible solution. Some things that can be affected, nonetheless, transmit an affection without themselves being affected or being affected very much. Alexander points out that a glass full of cold water serves to ignite a flammable object by the heat of the sun passing through, although the water might remain cold, and that when a fisherman holds the strings of a dragnet, they might transmit to his hands the effects of a stingray, without themselves being affected. Alexander argues that it should not surprise us that the same thing happens with the lunar sphere, that the sun should transmit its effect to the upper air through the aether of the lunar sphere. He then refers us to his now lost commentary on *De caelo*, where he argues that Aristotle never claims that the aether cannot be affected at all, only that it is unperishing, ungenerated, and unchanging in its size and that in some way it is reasonable that it be unaltered. So the aether can be affected by the movement of the sun and so transmit the effect to the upper air. The story readily gives rise to further puzzles and further solutions in the commentary tradition.[28]

Yet, Alexander's solution is not Aristotle's solution, as we can readily see. At *In de caelo* 111.24-112.24 (on *De caelo* I 3.270a25), Simplicius quotes, with a typically qualified approval, Alexander's argument that the sun can alter and so produce heat, where alteration is a change of quality of the sort that has contrariety (e.g., color). Aether has qualities which have contrariety (Alexander takes the contrary claim as incomprehensible). Only what affect the essence can bring about withering, but not qualities that do not pertain to the essence. So different stars have different color, but this does not make them destructible. So long as an alteration in the sun does not affect its essence it remains indestructible, so that there is nothing in Aristotle's argument that rules out all sorts of alteration.

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[28] For the Greek and Arabic commentary tradition, cf. Lettink (1999, ch. 1 and 2).

In a sense, Alexander (and Simplicius) are right. Aristotle (*De caelo* I 3.270a25-30) does not produce a valid deductive argument that rules out alteration of eternal entities, but this is because his argument is inductive. He claims (a29-31), "we see that all things that have change in quality also have increase and diminution." Since he has just ruled out increase and diminution for the circularly moving, heavenly stuff, he now rules out alteration. Under pressure from the commentators, Aristotle might have restricted the scope of the argument, but he does not. Indeed, even if the converse is true by the definition of alteration, there is no reason to think that if something has a quality of the sort that has contrariety that it must be capable of alteration. Yet, pace Alexander, there is also no reason to think that aether has such qualities either.

Perhaps Aristotle explained the relationship between lighting up and being ignited in a work *On Sensatio*n or perhaps he explained it in a lost part of *On Sensation and Sensibles*, whichever is mentioned in our second passage above, *Meteorology* I 3.341a14. The fact is that we do not have his account.[29] It is futile to fall back on the unknown contents of a lost work. But at least they would indicate that that Aristotle gave some thought to some of these puzzles.

Let's turn to puzzles (c) and (h) about the light and heat of the moon. In fact, if each star produces light by rubbing against the fiery sphere, but only the moon is near the fiery sphere, what is the mechanism by which each star produces light and how does the moon fail? According to Aristotle, the moon gets its light from the sun, a view that goes back at least to Parmenides.[30] Secondly, lunar eclipses occur by interposition of the earth between the sun and the moon. Although we do not expect, on this view, that the moon should produce its own light, one might well wonder whether additionally there is a proper lunar light to account for the various reddish hues of the moon during a lunar eclipse, but not at other times,[31] although this solution then gives rise to another puzzle, why doesn't the moon also appear red during a total solar eclipse, and why aren't the dark parts of the moon during phases also red? This puzzle, however, is secondary to the big issue, what is the mechanism by which the sun illuminates the moon, if the light is produced by rubbing against the fiery sphere, the limit of the sublunary realm composed of the four elements, or rather chemical compositions of the four elements.

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[29] Alexander, *In Meteor*. 17.1-4, takes the comment mererely as stating that the question pertains to the relation between sense faculty and sensible. If so, he does not take it as alluding to the relationship between the sun and the heat and appearance caused by the sun. Although *On Sensation and Sensibles* 4 concerns the sensations of taste, which is a modification of touch, and odor, and so has a little to say about the sensation of heat, the work contains no discussion of heat and the sensation of heat per se.

[30] See DK 28B 14-15

[31] The red appearance of the moon is obvious, but the evidence that it was familiar in the time of Aristotle is rather weak. Cf. Olympiodorus (*In Meteor*. 67.32-8.2), who cites as evidence for the moon's having its own light according to Anaxagoras and Democritus the fact that its eclipses make this clear (ὡς δηλοῖ ἡμῖν ἡ ἔλλειψις αὐτῆς). Plato, *Cratylus* 409B might be thought to bear on the color of lunar eclipses but actually doesn't. Here Socrates says that, according to Anaxagoras, the sun casts new light on the moon constantly, but that some stay from the previous month.

As important, according to Aristotle, the moon produces enough heat so as to create a mini-season based in the synodic periods of the moon. In fact, the phases of the moon do seem to be associated with some tiny changes of weather (averaging about .03˚C) in the course of its phases, with maximum heat at full moon, some of which may be due, not to the moon directly but to the monthly variation of the distance of the earth from the sun.[32] This is not anywhere near enough to be observed by ordinary means, especially by fourth century inhabitants of Athens, and certainly not enough to have an effect on animal or plant life. So the Lyceum was lucky. It is not clear how the view is a consequence of Aristotle's theory of lunar light and motion, nor can it quite be purely an artifact of the Lyceum either. Theophrastus[33] seems to suggest that there may be some folklore behind their assertions; Aristotle may be inferring from folklore and his own theories.[34]

Let us examine carefully Aristotle's solution that the sun is hotter than the moon because it optimizes speed and distance. If we take a day as one solar day, the actual motion of the moon relative to the combustible sphere will be approximately its daily motion east/west less its synodic motion west/east, 57/59 circles per solar day, while the fixed stars will make 1 1/365 circles per day. The difference is not great. If Aristotle is taking absolute speed, stadia or something per day, the difference in speed might be greater, but why would it have a different effect on the lower body? Isn't the amount of rubbing on the combustible realm dependent on the angular speed? And if it isn't, we have no idea what Aristotle is up to.

How can Aristotle account for the phases of the moon, especially given Aristotle's very conventional picture of how moon phases occur.? The moon is a sphere and is lit up by the sun,

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[32] So Balling and Cerveny (1995) for lower troposphere (up to 6 km). Anyamba and Susskind (2000) report a larger variation, about .3˚C in polar latitudes, above 60˚N and below 60˚S, and in winter and variations up to 2˚C associated with El Niño. Observations of temperature variation is not trivial even today. See Langley (1889) for a survey of 19th century attempts to measure lunar heat on earth.

[33] *Hist. Plant*. V 1.3.5-8 (people recommend cutting trees for their wood when it is hard and not rotting, i.e., after moonset), *Hist. Plant*. VIII.10.2.7-3.1, *De causis plant*. III 22.2.10-15, IV 14.3.1-8 (grain is most likely to rust at full moon at night since the moon decomposes with its heat). Does Theophrastus come to this view about grain rust on his own? At *On Winds* 17, he describes the moon as a weak sun and claims that breezes are more powerful at night and that stormier weather occurs at full moon. He even suggests that one might look for similar phenomena with risings and settings of fixed stars. The pseudo-Theophrastus, *On Signs*, contains many claims about weather associated with lunar phases (5, 8, 12, 27, 33, 38, 50-51). At 5, in particular, the author(s) associate weather patterns with the presence or absence of moonlight, although we do not find the familiar claim that the moon produces more heat at full moon.

[34] Some of the following may be Aristotle's 'observations', some folklore. There really are only two biological claims, both related to reproduction. *Meteor*. II 8.367b25-30 (the heat of the moon is weaker by around eclipses, thereby causing winds, cf. also Probl. XVI 18); Hist. An V 12.544a18-21 and (most edible sea urchins have more eggs when it is warm or the moon is full); *Parts of Animals* IV 5.680a31-5 (sea urchins grow larger eggs at full moon because nights are warmer, and not, as some think, because they eat more); *On Generation of Animals* II 4.738a16-22 and IV 2.767a1-8 (women tend to menstruate at the end of the month when it is colder and stormier). In some cases, Aristotle is inferring from lunar phases, which are associated with terrestrial effects, to the effect being lunar heat. See also his general summary on the seasons at *On Generation of Animals* IV 10.777b16-8a9.

just as any object might be lit up by a light source.[35] We need not engage the sorts of questions that later commentators worry about, whether it is by reflection off of rough surfaces or by absorption and transmission or something else. It is enough that the moon participates in the light of the sun (μετάληψιν at *De gen. an.* IV 10.777b25). But how does it do that?

Even if, in order to solve some of these puzzles, one brings in the fact that the Aristotlelian/Callippan model of *Met.* XII 8 is later than these texts, one needs either to argue that Aristotle has radically changed his account of celestial lighting, without any evidence for such a development, or to explain how in the modification of the system of Callippus, the star Sirius manages to produce an effect through 48 or 54 rotating spheres of aether so as to rub the fiery sphere and produce light. Or alternatively, it is not an issue whose importance Aristotle had the least awareness of. And furthermore, one needs to explain how Aristotle can adopt the new theory without modifcations of the theory of starlight. It is not that we could not imagine some theory, but the theory would not be Aristotle's. The developmental approach does not alleviate the problems—they only get worse. Why didn't Aristotle address them later in life?

Such solutions are Aristotelian—they become the meat and potatoes of the commentary tradition on meteorology, but we have no reason to believe that Aristotle had solutions to any of the puzzles raised above. It is, of course, possible that Aristotle thought about these issues, that he had a solution for them in some lost work or expressed them in conversations or lectures in the Lyceum. They are all puzzles that arise out of looking at the internal consistency of Aristotle's accounts. On the other hand, other than our deepest respect for his genius, we have no reason to believe that he thought of them at all. The puzzles may feed the commentary tradition, but their usefulness in understanding Aristotle is limited. They place limits on what we can know of Aristotle and on how far we can interpret his text. For example, it is very likely that puzzles (e) and (f) arise because Aristotle does not see that his theory of starry light precludes direct perception of the star, that the optical theory he adopts (and in conflict with his own theory of vision) needs to be revised in the light of this celestial theory. This sort of analysis is important for fixing the boundary between Aristotle and Aristotelianism.

§3. The Imperfection of the Spheres

A reasonable dogma among Aristotelian scholars is that each of the rotating spheres that constitute the heaven be perfectly spherical and that there be no rubbing between them. Furthermore, the aether is unmixed with anything else. The stars are also spheres imbedded in these spheres, but they must be so imbedded that there are no gaps or void between the spheres.

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[35] Although Aristotle's argument at *De caelo* II 11.291b17-23 for the sphericity of the moon is not explicit, Aristotle assumes that his audience will be familiar with both the argument from phases and the argument from the shapes of eclipses of the sun, an argument parallel to the argument for the shape of the earth from eclipses of the moon at *De caelo* II 14.297b23-30.

These three conditions are not the same. The perfection of the spheres is merely to prevent gaps, the interdiction against rubbing is to prevent dragging. The aether cannot be mixed with anything else because that would make the aetherial body subject to destruction and the universe mortal. This is the ideal Aristotle. Let's now look at texts and three questions.

1. How does one sphere carry the sphere below, by attachment or in some other way?
2. How perfect are the spheres?
3. The moon has variegations in its appearance, although these variegations do not change. If the aether is one element, how does variegation occur?

In the Eudoxan theory, one sphere must carry the poles of the next sphere below. Physically, where are two ways we could imagine this. The carrying sphere might have two frictionless dowels or knobs sticking out of it that fit into their respective holes in the other sphere, or the carried sphere might have the knobs and the carrier the holes (one meaning of πόλος (pole) in the fourth century BCE is 'dowel'[36]). The knobs, of course, would rotate with the sphere of which they form a part.

Against the mechanical view, one might think that the knobs need to do a lot of load bearing (up to 8 spheres in the full Aristotelian/Callippan model). Surely, the knobs would wear away and break. This is a very nice argument, but we have no reason to think that Aristotle ever considered it. The aetherial bodies do not have weight or tendency not to move. So would Aristotle think that carried spheres would resist a motion from an upper body? We have no answer to this question.

One might think that Aristotle rejects this solution in *On the Movement of Animals* 3.699a12-27:

> Someone might be puzzled whether if something moves the whole heaven, it will have to be unmoved and that this not be a part of the heaven nor in the heaven either. For if by being moved it moves it (the heaven), it is necessary that it cause-motion by touching some unmoved, and that this be no part of the mover; and, alternatively, if the mover is straightaway unmoved, it will similarly be no part of the moved. And those who claim the following speak rightly, that since the sphere is moved in a circle no part of it at all rests. For either it would need to rest as a whole or it would be torn apart with respect to its holding together (continuity). But (they speak) incorrectly since they believe that the poles have some power, although they do not have magnitude but are limits and points. In addition to there being no substance to any of these sorts of things, it is also impossible for something to be moved in a single motion by two things. And they make two poles. And so someone might be thoroughly puzzled from these

[36] This is found in an inscription for building specifications from Eleusis (IG^2 1675), but see also 'dowel casing' (ἐμπόλιον) here and at IG^2 1678 from Attica and ID 104(3) from Delos.

> considerations that something holds to the whole nature as earth does to animals and things that are moved through them.

Aristotle here argues that an UMM cannot be a part of the rotated heaven. If it is a part, then either the whole heaven will not move or some part of the heaven will not move while the rest does. In the latter case, the entire heaven will not be a single continuous enitity. He then criticizes someone who thinks that the poles move the heaven, although they lack magnitude, his objections being that non-substantial entities, such as points, cannot move anything and that two things will not create a single motion. At the end of the quoted passage, Aristotle proceeds to ask whether the spheres need a terrestrial anchor to move.

However, Aristotle argument that the sphere cannot consist of a motionless pole and a moved sphere says nothing about our question, how does one sphere move the poles of the other? In our suggestion, the knobs rotate with the sphere of which they are parts and merely serve as parts of a simple mechanism. We could make a similar argument about the rest of *On the Movement of Animals* 3, namely that the earth could not cause the primary motion. It too has nothing to do with a set-up where one moving sphere carries another in its movement. Yet, so far as I know there is other text in Aristotle that has more bearing on our question than this one.

One might think that Aristotle must reject the mechanical solution since each sphere will either have a knob or a hole and so be imperfectly a hollow sphere. This rejection commits Aristotle to a very strange view of the activities of a rotating sphere. It must both pursue its own UMM for its proper motion and the motion demanded by every UMM above. If it does this, there is no longer a need for a carrying sphere except to fill void. The four UMM's of Jupiter will move the sphere of Jupiter by themselves. For example, sphere4 will move in harmony with sphere1 without being attached to it. If so, what is the need for the sphere_1? By this argument, wouldn't it be enough to dispense with the unwinders and the extra diurnal spheres and so have the 33 movers and 8 spheres, all except the first with complex movements resulting from 4 to 5 influences. In fact, one could even get rid of all but the first diurnal mover to have merely 27 movers. On this view, Aristotle has multiplied spheres and movers without necessity. I shall return briefly to this issue in §6.

Thus, we are faced with, I think three choices, either Aristotle opted for one of these two solutions, or he just did not consider the question. It was enough that the carrying sphere carried the carried sphere. My own prediliction is to think that the mechanical view is the better theory, at least when coupled with a theory of aetherial dynamics, so that my Aristotle would have the poles of a sphere as knobs fitted into holes above, but that is merely my own Aristotelianism.

A second objection to the mechanical view might be that the spheres are less than perfect. Here we run into a difficulty. Aristotle's physical argument that the universe is spherical because otherwise there would be void is clearly invalid (*De caelo* II 4.287a11-22). Any

ellipsoid section (with the cylinder as the limit), including the ovoid and lentiform rejected by Aristotle, would do, although the inner surface of the outermost sphere will need a different shape or orientation from that outside and so be of varying thickness.

Nonetheless, whatever the shape of the universe must be to avoid void, the spheres are not perfectly smooth (*De caelo* II 4.287b14-21):

> And so it is clear from these things that the kosmos is spherical, and that it is as lathed in precision in such a way that nothing manufactured has anyting comparable nor anything else that appears before our eyes. For nothing of the things from which they are composed can receive the evenness and precision in the way that the nature of the surrounding body does. For it is clear that there is a proportion, as water is to earth, so always are the elements that more distant.

So, we expect Aristotle to be saying that the evenness and precision is in the proportion:

> earth : water = water : air = air : fire = fire : aether

Since this is a proportion, the aether is not *perfectly* smooth. I shall be using this claim in what follows.[37]

It is, of course, possible that Aristotle is speaking metaphorically, in which case all we can infer is that the aether is very even. Moreover, although 'precision (ἀκριβεία)' most certainly refers to the detail of the shape of the sphere, i.e., it deviates minimally from a mathematical sphere, it is not clear what is involved in 'evenness (ὁμαλότης)'. Does it merely mean 'smoothness (λειότης)?[38] Or does it also refer to the evenness of the variation that makes the stars distinct as well as the variations in the internal(?) texture of the moon?

So let us now turn to the third puzzle, the texture of the moon, which Aristotle refers to at *De caelo* II 8.290a24-9, in an argument that the stars do not roll. In fact the problem is not just the moon. Every star has effects that are different from the effects of the aether surrounding the star. So there must be variation in the heaven in any case, even if it is merely that stars are ensouled in ways different from other celestial spheres (something for which the evidence is also very slim).[39] The fact that every star is a sphere imbedded in a sphere and that there are many circumterrestrial spheres might raise the question, what makes them separate bodies at all? How

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[37] Kouremenos (2003) argues on the basis of this chapter that the sphere of the universe is the only mathematically perfect sphere. I see no reason to think that Aristotle would regard other aetherial spheres as more or less spherical, except for the possibility of dowels.

[38] Aristotle especially uses this word to describe the reflective qualities of a material, e.g. *Meteor*. III 4.373a35, 4.374b19, 6.377b21. See also *Met*. VIII 2.1043a21-8, where 'evenness' is the smoothness of the surface of a calm sea.

[39] Thus, I do not understand why Lloyd (2000, 249) sees the face of the moon as a problem for the invariability of the heaven. It is not more a problem than the problem for the unchanging nature of the aether, only for its homogeneity, which, as we shall here see, Aristotle does not claim. Our question will be, in what does this variegation consist?

is aether solid in a way that earth is, but water, air, and fire are not? Putting this aside, let's look at *Meteor*. III 3.340b5-10, where Aristotle is proceeding in his discussion from the heaven to the earth.

> Let us speak determinately together in regard to what will be stated and what was presently stated. For we say that the upper body even as far as the moon is a body different from fire and air; nevertheless in itself some is cleaner (καθαρώτερον) and some is less pure (ἧττον εἰλικρινές) and has differences, and most of all where it has its limit at the air and the kosmos about the earth.

Some, such as Guthrie,[40] wondered whether Aristotle is here committed to the claim that where the lunar sphere is in contact with the upper regions of the sublunary world the aether is somehow mixed with fire and even air. This might then account for the imperfection of the moon. In fact, Aristotle once alludes to such a doctrine, *On the Generation of Animals* III 11.761b15-23, and says that if there were fiery animals, they would have to be on the moon, since this appears as mingling with the fourth distance," that is fire. Aristotle puts the issue off for another discussion—or is this just a joke that he is putting off explaining?[41]

The words Aristotle uses certainly are problematic, 'cleaner' and 'less pure', in the translation. But we have no way of knowing what he means by them. So we are left with a claim, which we are free to interpret however we choose. It is unlikely that Aristotle gave little thought to the matter, how could he not? Nonetheless, he leaves us more with a question than a theory. This is another limit to the possibilities of interpretation. That said, I find Guthrie's proposal implausible, not just because of a possible joke, but because it would bring impermanance and forced motion to the lower heavenly spheres. But it is small solace to object to a solution to a puzzle in a theory by leaving another puzzle.

We aren't finished. For another problem arises. How does even the regulated sphere manage to turn once in such and such time? Without complexity and a foothold, the UMM is

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[40] Guthrie (1939, 177-9).

[41] Jaeger (1923/1948, 144-150) infers from *Hist. An.* V 19.552b10-17, Cicero, *De natura deorum* II 42, and a battery of circumstantial, later evidence, that Aristotle holds that there are animals that are fiery. The context of the *Hist. An.* passage is insects that come about by spontaneous generation, the immediate concern being those whose generation (putrefaction) occurs where it is not expected, in extreme cold and heat and where the grub will die if it is away from its cold or hot environment. So, grubs in Cypriote copper slag come to be in the fire. He then mentions the salamander merely to show that there are animals impervious to fire and not as an animal engendered in or out of fire. I think that one should not build too much on this, regardless of its long and fanciful history. Cicero may well be, as Jaeger supposes, citing Aristotle's lost *De philosophia*, but even here the evidence is very weak. Lucilius Balbus, representing the Stoic position, is discussing Cleanthes' argument that the sun is a fire of the nutritive sort (as opposed to the destructive sort) and is alive. He then cites Aristotle as arguing from animate things being born in earth, water, and air, that they should also be born in what is most conducive to life. This would be Aristotle's aether and not destructive sort of fire (Aristotle's fire). Nor is Aristotle (pace Jaeger, 149), according to Cicero's presentation, arguing inductively that life is in every element. The passage from *Gen. An.* in question shows that Aristotle rejects the view for the sublunary realm and entertains it only for the lunary realm.

like Wile E. Coyote in the *Road Runner* cartoons trying to get back to the cliff. Dowels might save the lower spheres, but what anchors the outermost sphere? Aristotle does try to answer this question in *De motu animalium* 4.[42] There are two senses in which an unmoved is necessary for motion, as a source and as an anchor.[43] Although Aristotle has just mentioned the myth that Atlas uses the earth as an anchor (3.699a27-b11), the issue of having an anchor is secondary to his discussion. Aristotle's real concern here, as elsewhere, is with the power that moves things. So it is possible that Aristotle thinks of each UMM as an anchor as well as an UMM, whence he will place it on the equator at the end of the *Physics*. It is also possible that in rotation there is no need for an anchor other than the poles. However, he never gives either as a reason, and we have no reason to think that either is his reason.[44]

§4. Aristotle's Three Principal Accounts of Celestial Motion

Aristotle has three different accounts of how the spheres rotate. In the *Metaphysics* XII and *Physics* VIII, Aristotle argues that the celestial system and the rest of the kosmos would come to a halt unless there is a first mover that moves the first sphere of the entire system. The argument in the *Physics* in outline roughly goes:

1. There always is motion. (VIII 1-2)
2. Everything moving is moved by some [primary] mover. (VIII 4)
3. All primary movers are unmoved. (VIII 5, but with a "fresh start" at 257a31-2 resulting in a more mathematical argument)
4. Because of (1), there must be at least one unmoved, eternal, first mover. (VIII 6)

4a. There is at most one unmoved, eternal, first mover (a teleological argument). (VIII 6)

5. The UMM causes one continuous simple motion (treated as a corollary) and hence (2b). (VIII 6)
6. Circular motion is the primary motion in that it is the only motion that can be eternal, continuous, and regular, while locomotion is causative of the other changes. (VIII 7-9)
7. No finite magnitude can cause motion during an infinite time. (VIII 10)
8. No finite magnitude can have an infinite power. (VIII 10)

8a. The power of an infinite magnitude is infinite (not used). (VIII 10)

9. Since there is no infinite magnitude (iii 4-8), the first mover lacks magnitude. (VIII 10)
10. Something moved moves only while something is moving it, so that a continuous motion requires a continuous power.
11. Hence, an eternal mover with magnitude would have to be infinite.

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42 669b32-670a25.

43 Cf. *De motu* 8.702a24-32 on the movement of joints.

44 One might seek some help from *De caelo* II 2, where Aristotle argues that all celestial bodies rotate from right to left. This gives the 'head' of the sphere as the pole where this is the case, e.g. for the first sphere in the south, for the ecliptic, second sphere in the north. The problem is that the pole, as part of the sphere is not an external anchor.

12. The mover is located on the rim of the universe (not a theorem, but a plausible thesis based on the UMM being nearest to the fastest movement, and perhaps based on VIII 5.256b13-b27 or the theorem of VII 2 that the mover is always in contact with the moved).

The overall strategy of the argument is to reduce the problem of there being uninterrupted eternal motion to there being an eternal circular locomotion and to argue there needs to be a first mover. From this Aristotle can bring in a dynamical principle (any pair of power, effect, and time are proportionally related) whose effect is that a mover with magnitude must expend its power. No mover with magnitude is up to the task of maintaining eternal circular motion that is not infinitely fast. Therefore, the mover lacks magnitude. Thus, the argument famously sidesteps the possibility that something has a natural circular motion. So in *Physics* VIII 4, natural motion requires a mover in the sense of causing its generation, but this is irrelevant to eternal bodies. It also avoids saying anything about the nature of the UMM that does not pertain to its role as an efficient cause of motion, just as it avoids talking about form/matter distinction. Despite the discussion of animals self-movers in the argument of *Physics* VIII 5, he never mentions 'soul' in the entire book. We infer that the causation is efficient because the reason for the UMM lacking magnitude is just that an UMM with magnitude cannot be an efficient cause and because the only cause at play in the entire argument of *Physics* VI-VIII is efficient causation. However, Aristotle does not say anything about the mechanism by which the UMM is an efficent cause or any other sort of cause. I believe that this fact is central to the project of the *Physics*; others may see a gap in the argument; yet others may see an implicit theory. It is enough that it is not explicit.

The argument also has very little to say about the spheres of the planetary stars. Again, one might interpret this to mean that Aristotle has not yet learned Eudoxan astronomy or has a very different theory of planetary stars. I would find it amazing if Aristotle had a theory that regressed from the theory of the *Timaeus*. More to the point, the argument of *Physics* VIII is that there needs to be a first UMM. Economy could be just as easily Aristotle's motivation for not discussing planetary stars as the lack of a theory. Nonetheless, at *Physics* VIII 6.259b28-31, Aristotle notes that the UMM's of those celestial bodies that have more than one motion will be moved accidentally by the movements that they do not cause,[45] which, at least in *Metaphysics*

[45] "Being moved accidentally by oneself and by another are not the same. For being moved by another belongs also to some principles/sources-of-motion of the things in the heaven, that is, those that are moved with several motions (ὅσα πλείους φέρεται φοράς), while the other belongs only to perishables." Bodnár (2002, 172-181) distinguishes two readings of this text, a defining reading, 'those heavenly bodies that have more than one motion,' and a non-defininning reading, 'the heavenly bodies (besides the first body), which, in fact, have more than one motion,' and argues for the non-defining reading. In some sense the ὅσα (that is, those that) clause must be defining, since we do not otherwise know which are principles (of motion) of the things in heaven are moved. The difficulty for us is that we have no idea what theory Aristotle is referring to. It might be a Eudoxan theory without unwinders (not necessarily the one in *Met*. XII 8), or it might be to a theory with unwinders. In the first case, as Bodnár notes (p. 177), the first sphere of every planetary system will have one motion. With unwinders, the first

XII 8, would be the movers of all the spheres above. Some have regarded this text as a later addition, although for rather weak reasons.[46] Certainly, the lack of magnitude of an UMM guarantees that it could only be moved accidentally, whether by itself or another mover.

The argument of *Metaphysics* XII 6-7 is quite different.[47] Here, Aristotle argues that there must be an eternal, UMM (1071b4-5) that is pure actuality, lacking matter.

Part I (6.1071b5-11, 7.1072a19-23): there is an eternal body that moves in a circle, namely the first heaven.

1. If substances are destructible, movement is.
2. If movement is destructible, time is (implicit)
3. time is not destructible
4. There must be a continuous movement (from any reasonable definition of time)
5. Only circular locomotion is continuous.
6. Hence, there must be a circular, continuous locomotion.
7. There, must be (an eternal body that engages in) circular motion (7.1073a19-23).
8. The eternally moving circular body is the first heaven (7.1073a23), without argument.

Part II (6.1072b12-21): If there is an eternal first mover, it must be actuality without potentiality or matter.

8. If there is something is eternally causing motion, it must be eternal.

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sphere of every system will also not have any motion *unless* one also holds, e.g., that a man being carried upstream on a chaise by porters on a boat going downstream at the same rate is moving. In a sense he is, and in a sense he isn't, and Aristotle himself could go either way on this point.

46 I see no reason to take this text as a later intrusion, as Jaeger (1923/1948, 360-67) does. Jaeger sees three later interpolations into *Physics* VIII 6, 258b10 ('whether one thing or a plurality'), 259a7-13, which asserts that if there are more than one eternal motion, there will be more than one eternal UMM, and 259a7-13, the passage in question. Jaeger's argument against the first two passages is uninteresting, since they are part of an argument for there being at most one UMM. Such an argument needs to consider the possibility of an UMM, which Jaeger seems to ignore. However, they need not refer to planetary UMM's. He claims that the second passage is 'remarkably tautological'. It isn't, but states an important thesis, that each *eternal* motion requires an *eternal* mover, regardless of how many they are. Skipping the argument would have left another gap for commentators. It also provides a principle which is of importance, but not inapposite to the *Physics*. This leads us to the important passage which does contrast heavenly UMM's with terrestrial ones. Terrestrial UMM's (i.e., souls, though Aristotle does not say this) move themselves accidentally as they move the bodies carrying them. The first UMM stays still, we find out, on the rim of the equator of the first sphere. The others are moved by the higher spheres (actually, only most of them), and so are moved accidentally. Jaeger sees this as 'introducing a new principle that does not harmonize with the contrast between the self-moving earthly souls and the absolutely unmoved spirit of the world." Since the claim has just now been made that the first UMM cannot move even accidentally (accepting Jaeger's correct reading of 259b20), it is hard to see what there is that needs harmonizing, other than with Jaeger's preconception of what Aristotle's upper realm in *Physics* VIII should be. The only solid evidence that Jaeger brings bear on the issue is in a footnote (366 n. 1), that according to Simplicius (In Phys. 1262.16-22), Eudemus adds in his paraphrase of the *Physics*, 'in each motion' to 'what primarily moves is unmoved per se and accidentally'. For Jaeger, the relation of this text to 259b28-31 'remains obscure'. But it would not be obscure if Eudemus did not have this text at all. This would counter Jaeger's claim that it, however, is an addition late in Aristotle's life, since Aristotle would never have added it. Alternatively and more plausibly, Eudemus does not follow Aristotle as slavishly as Jaeger assumes. On this, cf. Bodnár (2002, 179-181).

47 My presentation of the argument develops a line of interpretation in Laks (2000).

9. If it is eternally causing motion, it must always be actually causing motion.
10. If it is actually causing motion but could stop, it would not be eternal.
11. So it would be actuality in its substance (so as not to be potentially not causing motion).
12. Only substances that are eternal actuality lack matter (no argument for the claim).

Part III (7.1073a22-6): There is an eternal substance, UMM of the first heaven, whose substance is actuality (unmentioned here, but it also lacks matter, he concludes at 1073a4-5 that it is also separate from perceptibles, but does not provide a separate argument).

13. By Part I, there is something, namely which moves the first heaven (or, less likely: there is something and what moves it)
14. What moves and is moved is a middle (and hence not an ultimate mover)
15. Therefore, there is a mover that is not moved.
16. By Part II, this mover is eternal, in actuality (and lacking matter).

As Laks points out,[48] Part III is telescoped, and we need to supply argument from elsewhere. We need to suppose that without a mover the middle, i.e., the first heaven, might not move eternally in a circle. It is not necessary that we find a specific argument; it should be enough that this is the overall structure of the argument for a first mover in the *Physics*, to which Aristotle will refer at the end of the chapter.

In contrast with the *Physics*, however, Aristotle (XII 7.1072a26-b4) next provides a mechanism by which the UMM moves, namely as the object of desire and love. This is the only mechanism he ever provides. So we will need to ask whether it answers or could answer our questions about the argument of the *Physics* against there being a mover with magnitude.

Since the object of desire is a final cause (cf. 1072b1-4), this means that the UMM moves as a final cause, as he also indicates in *Physics* II 7.198a35-b4.[49] If this is the only way in which the first mover moves, it would not be an efficient cause, unless objects of desire are efficient causes (as well).[50] The way in which it accomplishes this is in as much dispute as the nature of the celestial spheres. Some have argued that this is the only way the UMM moves, others that

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48 Cf. Laks (2000, 215-9) and (2000, 228-30) for the textual difficulties.

49 Laks (forthcoming, 2014) points out that this is the only other passage where Aristotle explicitly explicitly classifies the type of cause of the first mover. This passage might also be read as excluding the first mover as an efficient cause.

50 Cf. Judson (1994, 164-5) for a defense of efficient/final causes. As many might suspect from the division of motion in *De an*. III 10.433b11-27, where there is a threefold division in motion, the mover, that by which it moves, and the moved. The mover is either unmoved or moved and moving. The achievable good is the UMM, and the moved mover is the desiring faculty. The means is the bodily parts, especially joints, and what moves is the animal. Sauve-Meyer (1994, 68-71) plausbily argues that when a lion sees a lamb, the UMM is eating-lamb and not the lamb, in as much as the lamb is not an achievable good for the lion. Cf. Natali (1997, 107-12). I am not so sure, in as much as the lamb qua edible might just as easily be characterized as the achievable good. However, unlike the UMM, when the edible is achieved it ceases to exist. So, even if the desired is the edible lamb and not eating the lamb, either the analogy will not hold or the analysis of desire should be different for desired food and desired UMM. Natali opts for disanalogy.

the story of the *Physics* VIII is presupposed in the account of *Met*. XII 6-10 and that the UMM is both efficient and final cause (but in different ways?). However, it is important to emphasize that the only means that Aristotle specifies by which the UMM moves the sphere is as an object of love or desire. Aristotle might describe the UMM in many ways, but there is no other detail than this. Furthermore, since it moves in this way, one cannot infer, without further evidence, that when Aristotle speaks of the mover causing motion, he means anything other than this.

So a natural question arises, whether a final cause can also, in the same respect, be an efficient cause, e.g., whether chocolate moves the chocoholic only as a final cause or also as an efficient cause. In fact, although he sometimes appears to indicate an incompatibility between the same thing being a final and efficient cause, this is, at best, illusory. For example, at *De gen. et corr*. I 7, Aristotle says that affecting is like motion (I 7.324a24-5) and that no affecter can be a final cause (I 7.324b13-15). One can thence deduce that no mover can be a final cause except metaphorically.[51] First, the argument is restricted to alteration and mixing.[52] Secondly, the incompatibiliy is that once something is in a final state, it is no longer changing. However, since perceiving chocolate causes a person to move, the chocolate causes the perception and so the movement, as we find in *De motu animalium* 7. One should be very sceptical about attributing to Aristotle the Aristotelian inference from the claim that an alterer cannot qua alterer be a final cause to the conclusion that any efficient mover cannot be a final cause.

A more serious puzzle, whether the UMM as loved can be efficient and final cause is Aristotle's claim that the movement of each sphere is for the sake of the stars (Met. XII 8.1074a17-31).[53] Here, the number of spheres is determined by the fact that each contributes to the motion of a star. So, by undoing the motion of the complex motion of star above, even the unwinders contribute to the motion of the next planetary star below. This is why there is no unwinder below the moon. However, to say that the motion of a sphere is for the sake of the star below it or on it is not to say that the cause of the motion, desire or love for something, must be the movement of the star below. There is no contradiction in something being an end of an activity and its being done as a result of love for something else. The end of a ruler's activities might be to keep the state moving along well, but she might do it out of love for the good (i.e., to emulate the ultimate good ruler of all). The motion of the star is an end in the sense of the ultimate result of the causal chain. So there are two ends on this view, one of which cannot benefit from the activity and the other of which gets a great eternal motion. On a more banausic

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51 Cf. Berti (2000, 186) and Laks (2000, 241-3) for the difficulty.

52 Aristotle has already restricted 'affecter (ποιοῦν)' to a changer of a quality that has contraries, that which produces alteration, a species of motion at *De gen. et corr*. I 6.323a15-20, cf. 322b6-22. There is an analogy with the genus, motion, but the

53 Berti (2000, 204) presses this point.

level, the process of buying a bran muffin and eating it (the actual action) is not incompatible with the end of nutrition and living the good life and being like god, etc. (cf. *Nic. Eth.* X 8.1178b25-7). So taking a distinction from *De anima* II 4.415a23-b7, which, according to *Physics* II 3.194a35-6, goes back to *De philosophia*, Aristotle distinguishes two senses of 'that for the sake of which', the goal and the beneficiary. The divine cannot be a beneficiary, so that it, or its crucial property (for all living, sub-lunary things, eternal existence) must be the beneficiary, and, as a result (415b2), all things desire after the divine and act for the sake of it. The stars are that-for-the-sake-of-which as benificiaries.[54] Would it be Aristotelian to argue further that a vacuous spherical motion would be like eating a muffin with no nutritional value?[55]

The view that the UMM causes emulation has recently been questioned on the grounds that the UMM cannot be the goal of the rotation, at least on the grounds that imitation is more Platonic than Aristotelian.[56] Nonetheless, one could argue that whatever it is that brings about reproduction or striving to live[57] or thought in philosophers[58] or even humans' standing upright as necessary due to their participation in the divine[59] is all that is needed, that the way of loving the divine is by being a likeness of the divine. Again, the way in which we are to think of this in terms of Aristotle's account of teleology may be obscure and in dispute, and for good reasons, but the phenomenology of the text is not obscure, namely that the sphere has eternal motion because the UMM is an object of love or desire.

The question of how to classify the UMM as a cause, final or efficient, is important for our interpretation of Aristotle and even the psychology of the sphere as it rotates. However,

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54 So Ross (1929, I cxxxix).

55 This argument is independent of Natali's argument (1996, 114-21) that Ross' text of *Met.* XII 6.10711-3, which expresses the same distinction, is an unnecessary reconstruction. This text might read (in the Oxford revised translation):

> That that for the sake of which is found among the unmovables is shown by making a distinction; for that for the sake of which is both that for which <and that towards which>, and of these the one is unmovable and the other is not.

Ross supplies 'and' while 'that towards which' comes from manuscript Ab, but not F and J. If this is the text, then the distinction is the same used above to explain how the stars and the UMM can be that for the sake of which. Natali shows that Averroes' translator (*Grand Commentary*, 1599) and Alexander, as reported by Averroes (*Grand Commentary*, 1605-6) hold that the distinction is between an end that belongs to something and something that can exist in its own right ("that for the sake of which belongs to something and is something, of which the latter is for eternals, and the former not"). If this is right, it does make a useful distinction between ends, but we will still have to avail ourselves of something like the *De philosophia* distinction to make sense of *Met.* XII 8. Even if Alexander's text can be recovered, it is not so clear that Aristotle's can.

56 Broadie (1993, 182) and Natali (*ibid.*), but with very different conclusions, namely that for Natali love leads to imitating.

57 *De anima* II 4.415a25-b7.

58 *Eudemian Eth* VII 15.1249b9-23, *Nicomachean Eth.* X 8.1178b24-34.

59 *On the Parts of Animals* II 10.656a7-10, IV 10.686a24-32

while we may disagree about this, there is only one abstract mechanism in the text, and it is not totally obscure.

I shall not be very concerned in this paper with the life of the UMM, as important as that is for finding troubles to undo its blissful existence. However, it is important that just as the *Physics* does not mention (avoids?) the details about its life and only infers things about it from its effects and a theory of dynamics, *Metaphysics* VII 7, 9 indulges in arguing about what the nature of the UMM must be for it to be an object of such great love.

Certainly, *Met*. XII 7.1073a3-13 refers explicitly back to the conclusions of *Physics* VIII 10 that the UMM lacks magnitude.[60] So here the UMM is is a mover in the way it is in *Physics* VIII, presumably an efficient mover. To see this it is enough to compare the conclusion of the Physics with the conclusion of Metaphysics XII 7:[61]

Table II: Comparison of the end of *Physics* VIII 8 with *Metaphysics* XII 7

Physics VIII 8	*Metaphysics* XII 7
267b17-26 (end of the *Physics*) **A1** 267b17-19 With these things determined it is obvious that it is impossible that the first and UMM have any magnitude. **C** 267b19-22 For if it has magnitude, it must either be finite or infinite. And so, it was shown earlier in the *Physics* that it is not possible that there be an infinite magnitude. **B** 267b21-24 **2.** It has been shown presently that it is impossible for a finite (magnitude) to have an infinite power **1.** and that it is impossible for something to be moved by a finite (magnitude) in an infinite time. A2 267b24-26 But the first mover causes an eternal motion and in an infinite time. It is clear that it is **indivisible** and **partless** and **having no magnitude**.	1073a5-13 **A** 1073a5-7 It has been shown that it is **not** possible for this substance **to have any magnitude** but it is **partless** and **indivisible**. B 1073a7-8 **1.** For a finite (magnitude) does not cause motion in an infinite time **2.** Nor can a finite (magnitude) have infinite power. C 1073a8-11 Since every magitude is either infinite or finite, it would not have finite magnitude for this reason, or infinite (since there is not infinite magnitude at all. **D** 1073a11-13 In fact, also that it is unaffected and unaltered. For all the other motions are posterior to locomotion. And so these (attributle) clearly (belong to it) because it exists in this way.

[60] Ross (1923, ad 1073a5) doubted this. Laks (2000, 239) sees a connection with 266a24-b8 and 260a26-27, but the first passage is just my Theorem 1, recapitulated in the conclusion; on the other hand the second is part of the argument for my section D and is not referred to in the recapitulation.

[61] The actual order in which the two theorems in B are proved in (Th. 1) *Physics* VIII 10.266a11-24 and (Th. 2) 10.266a23b6 is the same as stated in the *Metaphysics*. This is unimportant.

Section D in *Metaphysics* XII 8 does not occur at the end of the *Physics* but expresses a theorem that Aristotle carefully argues for in *Physics* VIII 7. Thus, the *Metaphysics* passage paraphrases the end of the *Physics*, with an addition from *Physics* VIII 7 to explain the lack of other changes in the UMM. The topic of *Metaphysics* XII 6-7 thus begins where the *Physics* ends.

We have then a reasonable expectation that Aristotle intends the conclusions expressed in *Metaphysics* XII 7 to be fully compatible with the arguments of *Physics* VIII 10. However, just as *Physics* VIII never tells us how the UMM moves the first sphere, we have no expectation that in Metaphyisics XII, Aristotle has in mind some unexpressed mechanism of motion. Perhaps Aristotle considers the beloved an adequate efficient cause; perhaps he thinks that the UMM moves in two ways, as efficient cause and as final cause, so that the end of the chapter is a reminder that it is also an efficient cause, or even, despite the argument there, he may think in the Physics that the UMM moves only as a final cause so that some moveds do not need efficient causers, or even that he does not see the tension we see. However, for the Aristotelian reader, it would have been nice to have been told. So is our gap culpable or merely apparent?

In *De caelo* I 1-2 (cf. I 9.279a33-b3), the stuff of the heaven moves by nature with a circular motion. There are many hints of divine natures, although usually Aristotle speaks of the stars as living. There is maybe a hint just previously of a divine entity at the rim or outside the sphere (I 9.279^{a}18-30). Aristotle says, "there is no change of any of those arranged beyond the outermost motion (19-20)." It is plausible to take this as refering to many beings beyond the outermost motion and hence to UMM's.[62] Even so, it does not imply a supra-heavenly realm. If the divinities lack dimension, they are at the rim and are distinct from the motions of the outermost sphere, as a unmoving point 'at' the equator of a rotating sphere. We expect this because so many arguments throughout *De caelo* depend on the rejection of void. We also seem to have a distinction between eternal mover and moved in II 6.288a27-b7, cf. b22-30.

Whatever the status of these unchanging divinites at the edge, the heaven is ensouled (II 2.285a27-30). The puzzle and solution (II 12.292a14-b25) about why the fixed stars have one motion while those nearer to the earth have more than one emphasizes that the stars share in action and life, although those on the outer sphere achieve their end better through one motion. So when Aristotle argues (II 9.291a23-4), on the contrary, that it is impossible for the stars to move as ensouled or by force, we need to understand either a contradiction or that he means, "in the way that animals move." I do not know what it is to be ensouled without having a soul.[63]

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62 According to Simplicius (*In de caelo* 287.19-288.8), Alexander thought this could refer either to the UMM or to the outermost sphere.

63 At II 1 284a18-35, Aristotle argues that there could not be a soul of a heavenly body that would eternally move a body whose motion is at all constrained and draws an analogy with the myth of Ixion, condemned to turn on a wheel of fire. So the motion is unconstrained. It is natural to think that Aristotle assumes that stars or spheres have souls, but one could just as easily argue that what is denied is that souls are a source of eternal, constrained motion, in

So here is the primary puzzle for every reader of *De caelo*: why would a mover need infinite power to move something that moves naturally and why is there even an UMM at all in the background here.[64] Now, we can give a straight-forward answer. If we accept that there is a top and bottom to each sphere and that each sphere rotates from the right by the nature of aether (neither quite the doctrine in *De caelo* II 2), why would different giant clobs of aether rotate with different periods. So something is lacking.[65] But does the author of *De caelo* II see this?[66]

Additionally, *De motu animalium* 3-6 draws analogies and disanalogies between animal motion and heavenly motion. I hesitate to say anything beyond the point that what Aristotle says here is consistent with what he says in *Physics* VIII to the extent that the mover is external and that what makes it impossible for the UMM to destroy the world is that it is unmoved (ch. 4). This suggests that if the UMM could destroy the world it would be as an efficient cause. Nonetheless, the account seems closer to that of *Met*. XII.

This is the principal puzzle of Aristotelian cosmology; why does Aristotle need an UMM given the natural motion of the upper bodies (*De caelo* vs. *Physics* VIII and *Metaphysics* XII)? How does the UMM move, as an efficient cause or as a final cause, or is the object of desire an efficient cause as well? Even so, even if an object of desire gets something to move, how does an object of desire put power in the moved animal to enable it to move? Nutrients do that, but by being consumed. The UMM is not a nutrient (*Physics* VIII vs. *Metaphysics* XII). Moreover, are the UMM's of each sphere like souls of each sphere, or are they separate from them, and if so do these spheres have there own souls?

§5. The Deep Incompatibility of *Physics* VIII 6-10 with *De caelo* I, II, III, and *Met*. XII 6-8

Let's return to that most perennial of puzzles, reconciling the three basic discussions in Aristotle about celestial motion, especially whether Aristotle requires efficient causes of the celestial motions. As already noted, there is an obvious incompatibility between the three principal accounts of celestial motions: the argument for a single, bodiless UMM keeping the world going round in *Physics* VIII 10, the account of aether and stellar motion in *De caelo* I and II, and the argument for an UMM in *Met*. XII 8. I aim here to bring these out more sharply.

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which case there would not be any implication that there are souls causing eternal, unconstrained motions. It is occasionally noticed that Aristotle in the *Physics* and *Metaphysics* avoids saying that the spheres or stars have souls, on the grounds that souls are first actualities, while the moving of the spheres is a second actuality (Kosman, 1994, 145; Broadie, 1993, 392-3). One could, I suppose, read this passage as not implying that there is a soul of the heavenly bodies.

64 Kosman (1994) holds that the text concerns the ensouled sphere.

65 Cf. Judson (1994, 157-61) for the use of *De caelo* II 2 to make the souls of the spheres account for the orientation and direction of rotation.

66 The puzzle is absent where one most expects it, the argument that the circles of the stars and not the stars themselves move (*De caelo* II 8) and the puzzles on the distribution of motions (*De caelo* II 12).

Here too, we shall see that there are puzzles that can only be resolved by an appeal to Aristotelian principles not to be found in Aristotle.

The most basic question for understanding Aristotle on the UMM is how many movers there are for each movement. While the account of *Physics* VIII is indifferent on whether the sphere of the fixed stars is alive—it only needs a mover located on its equator and moving it without being moved, it is clear that each sphere in *Metaphysics* XII must be alive. How else could it love and desire? This leads to two families of interpretations of the UMM's of spheres.

Two Lives per Sphere: So if the UMM is separate from the living sphere, there will be two substances, the pure actuality of the UMM, whose essence is thinking of thinking, and the composite of aether and the essence of sphere life, whose activity will include self movement and love for its UMM. If the spheres are not connected, as by dowels, then the spheres lower down will have to have, in fact, very complicated love lives. The thinking thinking of thinking somehow is an efficient cause of the movement of the living sphere and is the final cause of the living sphere's motion. If the living sphere is like other sublunary spheres, its desire is to be like the thinking as much as possible. So it emulates the object of its desire by eternal, even motion, the best that it can do, or something like that. This has been the dominant view.

One Life per Sphere: According to Simplicius,[67] Alexander reported two views about the role of the soul in *De caelo*.[68] Julian of Tralles held that the soul was responsible for motion to the right, regular motion, and the arrangment of the motion (presumably, the actual direction of the motion relative to other spheres). Additionally, Herminus held that the soul was responsible for the motion being uninterupted because no body can sustain an infinite motion. Now, Alexander objected to the Herminus because causing eternal motion is the job of the first mover (Simplicius, *In de Caelo* 380.5-7), but if we are asking whether the UMM appears in the account of *De caelo*, the objection begs our question. Broadie and Kosman[69] have recently revived the two views as views about the UMM. The UMM is like the soul of the physical sphere. We might describe UMM (though they don't) as the (second) actuality of an eternally rotating sphere having life. It has as its desire its own activity. So, it moves its sphere out of love for itself.

I am not interested trying to adjudicate the two families of positions. For example, on a developmentalist approach, Julian of Tralles might have been dead right for *De caelo* I-II, but not for *Physics* VIII, *Met*. XII and *De motu*. Instead, I aim to point to difficulties for any interpretation of the UMM. Here the prime outlier will be *Physics* VIII. Let's review Aristotle's argument here for there being a first mover that lacks magnitude.

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67 *In de caelo* 380.1-5 on *De caelo* II 1.284a14,

68 Herminus was a teacher of Alexander, for which cf. Moraux (1984, 361, also 386-8); nothing else is known about Julian of Talles (cf. *PW* 19 p. 9). Cf. also Sharples (2002, 17-18).

69 Broadie (1993) and Kosman (1994).

Physics VIII 4-5 is an existence argument for the UMM in three parts. The first (VIII 4) classifies movers and moveds, although it really concerns moveds, setting up a solution to the question how a natural motion might be eternal, but also applicable to motions of elements and motions of self movers. Yet, elements don't move themselves and most self-movers can stop.

I begin with the main thesis of VIII 4, here is the division of movers and moveds set up in the chapter (Table III):

Table III: The division of moveds in *Physics* VIII 4

accidental				per se		
X belongs to what moves or is moved		a part of X moves or is moved		according to nature		contrary to nature or by force
		by itself (a whole animal can move or rest; the movement may involve forced motion)		by another (sublunary elements; moved by what brought the element into being or by what removes the impediment to motion)		by another (this includes motion of some parts of animals)

These lead to the following thesis.

> Thesis VIII 4 pt. 1 ($256^{b}31$-$6^{a}2$): If all moveds are moved either by nature or against nature and by force, and all things moved against nature and by force are moved by something else, while again of things [moved] by nature those moved by themselves are moved by something, as well as those not by themselves, e.g., light and heavy by either what generates and makes light or heavy or what removes impediments to motion, then all moveds are moved by something.

The next part of the argument follows *Physics* VII 1, but argues for the following thesis:

> Thesis VIII 5 pt. 1 ($256^{a}20$-1): If every moved is moved by something, and the first mover is moved, though not by another, then it must be moved by itself.

Does Aristotle accept the antecedent of the conditional as true? Nothing in VIII 5 suggests that he does. The argument is for the conditional, and not for the claim that that any first mover is moved by itself. Aristotle next says that we need to make a new start (he will do this again at the beginning of 7), and the reason for this is that the argument for the conditional was naïve on

whether the self mover is a per se self mover. In effect, the second part of the argument is there to undermine the first part and the classification of self-movers in VIII 4 (look at the definition of accidental change). Although Aristotle starts with the question (257^{a}31-33), "if something itself moves itself, how does it move and in what manner," what he is really out to show is:

Thesis VIII 5 pt. 2 (258^{b}4-5): That which primarily moves is unmoved.

The arguments for this thesis assume that everything moving is moved by itself or by another. Hence, little more can be inferred about whether the UMM is attached or detached from what it moves, although, as Aristotle will go on to argue, it must be in contact.

If Aristotle were contemplating having the UMM being the form of the sphere, he would have to prepare for that claim. However, there are several things counting against this. First, the form/matter distinction is absent from the discussion of *Physics* VIII 4-10. Teleology is also absent. However, consider this fragment of an argument from VIII 6.259a20-b20 on whether animals could be pure self movers. After considering things that are not up to the animal, e.g. respiration, Aristotle says (259^{b}11), "and the cause of this is the surroundings and many of the things that enter into it, e.g. for some cases nutriment; for while it is digested they sleep, and when it is distributed they wake up and move themselves, with the first source being outside, whence they are not moved continually by themselves." Although it is tempting to see Aristotle here as discussing the role of the soul and final causes, Aristotle makes no mention of the soul, while the language here carefully avoids final causes.

With these two considerations in mind, let's once again turn to the argument of VIII 10. I will preserve you from the details, as I am mostly interested in the kinematic premises. Here, Aristotle argues that the UMM cannot have parts nor magnitude. He begins with arguments for the following theses (from the previous section):

8. No finite magnitude can have an infinite power. (VIII 10)
8a. The power of an infinite magnitude is infinite (not used). (VIII 10)
9. Since there is no infinite magnitude (iii 4-8), the first mover lacks magnitude. (VIII 10)
10. Something moved moves only while something is moving it, so that a continuous motion requires a continuous power.
11. Hence, an eternal mover with magnitude would have to be infinite.

Now the argument for the lack of size of the UMM must involve an argument of the following form:

Argument ΦAK (for: *Physics* UMM)

4. There is something that moves the first sphere (from Physics VIII 4-6)
10a If X has finite magnitude, then in causing motion X expends power. [hidden assumption]

11a. What moves the first sphere does not expend power. (from 1-4)
11b. Therefore, what moves the first sphere does not have magnitude.

The argument for the UMM is the capstone of Physics III-VIII, an explanation why there is motion (for Aristotle, that there is motion is obvious, but not why). Yet Aristotle only provides us with the existence of the UMM, its size, and its location. Why doesn't he give us more details in this work of the nature of the UMM? If we think of III-VIII as being a mathematical kinematics, this question does not arise. The properties given for the first mover are purely mathematical. It lacks dimension and it is either at the center or on the equator, but probably on the equator. On the other hand, it is also of the nature of the argument that it is notably thin. Commentators ever complain that Aristotle does not provide us with an account of how the UMM, ,given what it is, in *Metaphysics* XII can be an efficient cause. Worse, *Physics* VIII, also provides no explanation. I suspect that this is the wrong type of question.

Aristotle's argument is an existence claim. It is consistent with the abstract level of the argument that all we are provided are mathematical properties in *Physics* VIII, the existence, size, and location of the UMM. How it might accomplish this is not part of the story. Does Aristotle have a story? Can we provide one for him?

First it is very possible that Aristotle does not have a story. The argument might just go that far and then we are dealing with the obscurity of things very distance and not observable at all. Note that if you are convinced of the argument, you might just leave it at that, the extent to which you are convinced.

On the other hand, of course we can provide many ways in which a dimensionless yet located UMM might move the largest sphere of the world. But unless we can find some textual evidence that that is what Aristotle has in mind or some reasonable argument that he might have had that in mind and that there is no other plausible way of doing it (and note that this is a tall order, finding a unique way to fill in an account that is unsound anyway), then we are in that fine Aristotelian tradition. And so far as I can tell, Aristotle had many opportunities in extant texts to fill in the argument further, but doesn't.

I have argued that the abstractness and minimalism of the argument is reasonable in context. Nonetheless, we can ask in what ways Aristotle's account is consistent or inconsistent. So I would like to raise a few more questions about the kinematics.

The premises for ΦAK essentially employ the following assumption as applied to the motion of the heavenly spheres:

L1. If mover A moves moved B over C loops in time T with power D, then A moves B over n*C loops in time n*T with power n*D.

In other words, for ΦAK to be a valid argument, it must assume that:

L2. If the mover A of B has magnitude then A moves B by forced motion according to the dynamics expressed in L1.

Now, keep in mind that this says nothing about how A, lacking magnitude, would move B. But it does require that if the ΦAK is valid, the motion of the first sphere cannot be a natural motion. So if Aristotle has available a theory that the motion of the first sphere is natural, he ought to know that ΦAK is invalid. For the most his argument shows is:

Either the first sphere rotates eternally and naturally, its stuff ungenerated, or there is a magnitudeless first mover.

Recall that in VIII 4, where Aristotle argues that even natural motion is not self-motion, he treats first the cause of the element as the cause of the element moving naturally, e.g. fire of air becoming fire and so moving up, and, secondly, any impediment to the motion being removed. So the only cases of natural motion under consideration are cases where the element is generated and is not eternal or where it's impediment is being removed. But neither of these applies at all to the aether of *De caelo* I. Hence, Aristotle's argument that all motion is caused is actually invalid on his own terms. We seem to have here a culpable gap.

Furthermore, even if Aristotle is concerned about Julian's issues of of how the motion gets regulated, this has nothing to do with ΦAK, which is merely concerned with the question whether there can be an eternal motion of the first sphere, and not whether it can be regular, or east/west, or whether it can be about 11000 times faster than the sphere of Saturn.

The only way I can see that a mover as regulator of naturally revolving aether could be required according to the argument of *Physics* VIII would be if naturally revolving aether could naturally cease its motion altogether (and not, e.g., merely go very slowly). For then, Aristotle might argue, it would be possible for all aether to stop and so never to restart moving. He does hold, of course, that the sublunary elements stop when they reach their respective homes, but aether does not have a home to stop at. Its nature just is to revolve. So does Aristotle have a view that aether could naturally stop and an argument for it. I have no idea.

Hence, even if the One Life per Sphere View were correct, without some Aristoteliansim brought in, it would do nothing to save the argument of *Physics* VIII from the account in *De caelo* I of the heavens being composed of aether naturally moving circularly. The situation is actually worse if Aristotle wrote *De caelo* I before he wrote *Physics* VIII. In the light of *De caelo* I, Aristotle should have answered this question:

Question to a dead philosopher: why does a naturally rotating sphere need a mover at all?

The question is normally put in the context of *De caelo*, but the argument can also be put in the context of *Physics* VIII, with this question:

Related question for a dead philosopher: what is force of Argument ΦAK?

My point is: why should we assume that the first mover needs to expend power at all? If we look at the list of possible motions, it is either natural or forced.

Forced: If it is forced in any way, then an infinite power is needed. Here, you could have any final cause or whatever, it will need an infinite power to move it. Curiously, Aristotle never suggests, so far as I can tell, that the motion is forced. He just applies a rule that goes with forced motion. So the UMM must be able to expend an unlimited power over an infinite time. This is the most natural reading of the argument, but the least satisfying.

Self-mover: Self movers have motions that are forced and natural. However, if there is any forced motion, then the source will have to have infinite power. Unfortunately, Aristotle says that this is reserved for beings with complexity. The spheres are not complex.

Elemental mover: These require either a generator or a remover of impediments. Yet there is no impediment to circular motion and there is no generator of an eternal element.

Absent is the possibility of *De caelo* I, that the spheres are ungenerated, unimpeded, and natural.

Second Question for a dead philosopher: If not as an efficient cause, how does the first UMM move the first sphere, and what is the efficient cause of its motion (the law doesn't go away)? And if it is as an efficient cause, what is the mechanism?

There are many other questions we could ask of the view in *Physics* VIII. Why do the different spheres move with whatever speed they have, or why do they move in the direction they do? But such questions are clearly outside the project and argument of the book. Now, *De caelo* II does try to answer some of these questions. This gives rise to the position of Julian of Tralles, that the souls of the spheres regulate their motions. In the course of *De caelo* II, however, Aristotle attempts different sorts of answers to these questions. As something animate, the sphere has a top, and that determines the direction and orientation of the rotation of the sphere (II 2). This will not help, however, with the periods of rotation.

Now, if we think that Aristotle couldn't have required that the spheres are forced, the only possibility left is one that Aristotle never mentions in the *Physics*, but asserts in *De caelo*:

Natural self-motion: The motion is natural but the first sphere is a self mover. What is required of the sphere to get movement?

In consideration of the fact that it is natural but unimpeded (except for the sphere of the moon), we might expect the arguments of *Physics* IV 8.215a24-6a21 against void to apply, that an unimpeded natural motion will move a distance in no time at all. The 1st heaven is the fastest thing in the world, but it is not that fast. Aristotle does have an answer, but it is not satisfactory (*Physics* VIII 9.265^{b}11-16):

> Furthermore it is also only possible for [motion] in a circle to be even. For things move in a straight-line unevenly from the start and to the end. For all things move faster by the amount that they are distant from their being at rest. But for [motion] in a circle alone there is-by-nature neither a start nor an end in it, but outside it.[70]

But this won't answer the objection extracted from *Physics* IV 7. For there it was just the fact that the motion was unimpeded that made it infinite (and, I might add, in a Democritean, i.e., infinite universe). So perhaps an UMM is needed as an impediment. Given that Aristotle never makes this argument, it is at best Aristotelian. But it would be an odd argument, since it would require that the UMM have infinite retarding capacities, not just over the infinity of time (which he does, in effect, argue for), but at each instant.

Now Aristotle does have an alternative account of natural motion in *De caelo* III 2.301a26-b1, which amounts to this:

> If A moves over D in T, and A is divided into A' and A", and D into D' and D" such that A' : A" = D' : D", then A will move over D' and A" over D" in T.

In other words, the parts of naturally moving things will move proportional distances in the same time. Aristotle might here be assuming that the impediments for the parts are the same, although this would be problematic in the argument, since impedence is not part of the argument.[71] If one could apply this to the rotations of spheres, a leap because Aristotle's argument here, as in *Physics* IV 7, only concerns mutable elements, one might argue that the size of the spheres affects their motion. Could one fit this into a Eudoxan cosmology?[72]

We can put this point differently, if the motion of the spheres is natural, then why in the contemporary Eudoxan systems of, say, 26 spheres are the periods different except that some are the same, the 7 diurnal spheres, the 10 synodic planetary spheres taken pair-wise (but those of Jupiter and Saturn are nearly the same), and the 3 zodiacal spheres of the Sun, Venus, and Mercury? By this argument, we do not need movers so much as regulators, who keep the world turning at the right speeds (and why these speeds?). Here too we have gone far beyond what Aristotle says in the *Physics*, even though he could easily have argued for this as well.

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[70] That is, if the circle moves as a whole (we might say, if the center of the circle moves), its motion might have a beginning and end. Cf., e.g., *Physics* VII 9.240a29-b7.

[71] The argument is supposed to show that a weightless body would not move at all and so assumes that the weightless body would move some amount. By the argument of *Physics* IV 7, the medium would be enough to prevent motion. Now, the two arguments would have the same conclusion, but the advantage of the argument in *De caelo* III 2 is that it assumes the Aristotelian dynamics without the view that there must be a medium.

[72] In a sense the question is moot, since Aristotle does not have the mathematics to answer it, but the difficulty lies in fitting the next sphere larger than some second sphere. The ratio of the volumes will be r_1^3-r_2^3 : r_2^3-r_3^3 equal to the ratio of the speeds in distance something like r_1/period$_1$; r_2/period$_2$, depending on what we take a the speed. These are equal. One can set $r_3 = 1$, and solve for $r_2 > 1$.

Now let me turn briefly to *Met*. XII to raise two more \ puzzles. We start with the fact that *Met*. XII only sets up the UMM as an object of love. Now, *Met*. XII 6, as we have seen, provides an argument for the UMM lacking matter, although the argument is so sparse in details, that one needs to do a lot of filling in. However, the *Physics* VIII 10 argument infers that the UMM lacks magnitude (a different property?) only on the basis of an argument that it couldn't be an efficient cause of eternal motion if it did have matter. Yet, if the only way in which the UMM causes motion is by being an object of desire, then what difference does it make, one may ask, whether it has matter or not, whether it has magnitude or not. So the argument of the *Metaphysics* actually makes the argument of the *Physics* invalid. It is not the inability of a finite body to be an infinite pusher that requires that the UMM have no magnitude—for it is no pusher at all. It is rather the way in which the UMM is to be an object of love, as pure actuality thinking itself, the most loveable thing there is.

I think the second difficulty applies as well to the arguments of *On the Motion of Animals*. In *Met*. XII 7, Aristotle sets up the UMM as causing motion as an object of desire. Again, the argument of *Physics* VIII will seem an outlier.

Let us suppose that this is the only way that the UMM causes motion and suppose that this is what Aristotle meant in *Physics* VIII, as Aristotle seems to suggest at the end of *Met*. XII 7. In the ordinary world of animals, simply being an object of desire is not enough to bring about motion. A human pursuing a mirage over the desert will eventually cease moving. If the pursuit of nutriment does not end with actual nutrition, it ends in another way. In other words, there still has to be power as an efficient cause to make the motion happen. So making the UMM the object of desire in *Physics* VIII would not have solved the problem of establishing eternal motion. And so, we are left in *Met*. XII searching for a mechanism by which each UMM is an efficient cause of the motions of the spheres or with interpreting the text differently, a task made very difficult by Aristotle's own arguments for the prime mover in *Met*. XII 6, 7.

The best I can offer is the Aristotelian argument suggested earlier: a sphere with natural rotary motion just as easily rests as moves, so that there still needs to be a mover to keep it going uniformly and to prevent its resting. And if I were a Medieval philosopher contemplating how God might make the world go round, even at the risk of the rack, I would probably abandon *Physics* VIII and go for God as the great regulator of motion. However, I do not find this view in Aristotle either. In sum, either the sphere does not need a mover, or it needs a nutritive mover, or there is a terrible gap in Aristotle's account that we can fill only anachronistically. In other words, we have barely a clue how the UMM is to be an effective efficient cause.

§6. How Many Godly Movers Does the Kosmos Really Need?

Among the puzzles that Theophrastus raises in his own *Metaphysics*, there is one that he returns to repeatedly (8.5a23-5b10, 10.5b26-6a5, 16.7b9-8a7, 27.10a5-28.10a21): if the sphere

imitates the mover, why does it move and not rest. He strarts with Academic theories, but his main target looks much like Aristotle's. For he gives Aristotle's response, that ensouled things move, so that the best motion is circular (8.5b2-7); nonetheless, thinking, which is necessary for desire, is better than going round and round. So, we may infer, why doesn't the sphere stay still and think? Later, Theophrastus (27.10a5-28.10a21) will ask whether the heaven rotates according to its substance and so doesn't need an explanation or does but in some way. We are on familiar grounds.

A related question might be, "How many movers are required for Aristotle's system?" Alexander seems to reduce the number of movers to eight, one for each stellar system, but this may be just an abstract way of talking, without any commitent to how many motions and movers there need to be.[73] Yet, assuming he is the author of *On the Cosmos*, he picks up the argument of *Physics* VIII 6 (at §§86-89) to argue that there cannot be many movers of the first sphere because they could neither differ in number (as they lack matter) nor in species (as that would require a difference, so making them not simple). However, he then (§§92-5) picks up, perhaps oddly, the argument of *Metapysics* XII 8.1073b1-3,[74] that the UMM's are ordered according to the motions of the spheres, to conclude that they are distinguished by superiority and priority. Alexander thus has raised another puzzle whose solution is not to be found in Aristotle, how are the UMM's to be distinguished? Ross claims that the actual puzzle first appears in Plotinus.[75] They cannot be distinguished by their effects nor by matter.[76] Are they different in species? We are in the world of Aristotelianism.

This puzzle leads to a curious consequence. It is an odd feature of Aristotle's system that the first UMM needs to move the whole cosmos and be responsible for it. Yet, the only motion that it produces is the diurnal motion of the fixed stars, i..e. the first sphere of Saturn. Further down, every subsequent system has its own, identical diurnal sphere, and its own diurnal mover. So why does Aristotle need extra diurnal movers? The issue then is two-fold, what is so prime about the primer mover if the moon's mover does the diurnal work, and, regardless of why Aristotle sets up the system as he does, why are there redundant movers. Why doesn't each first sphere in a system just yearn for the prime mover? Even if the efficient mover needs to be in contact with the moved, does an object of desire as a mover need to be? In the *Epitome of Metaphysics* (147-9), Averroes proposes that the entire system be conceived as like an animal, so

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73 Cf. Alexander, *Quaestio* 1. 25 (40. 23-30) and Bodnár (1997), correcting Sharples (1982, 208-210), and accepted by Sharples (2002, 21 n. 91).

74 Cf. Genequand (2001, ad 92)

75 Ross (1929, II 395 ad 1074b31-8) and Plotinus, *Enneads* V.1.9

76 Ross (1929, I cxxxix-cxl) tries to solve the problem with intelligible matter, but it is very difficult to see how this would solve the problem, in as much as intelligible matter presupposes perceptible matter. One might try to use topical matter to distinguish them (cf. *Met*. VIII 1.1042b6 and Ross (1924, ii 227, ad loc.)).

that there is need for only one mover of every diurnal motion. The result must be a little odd, as there will have to be other movers doing the other, slower things in between these grand diurnal motions, while those other spheres that have the same motion might as well also have the same mover.

§7. A Little Redemption for the General

I would now like to turn briefly to the *Metaphysics* XII 10. I will not pretend to make a big contribution to the discussion, but would like to make some small points about efficient causation. Sarah Broadie[77] points to 3 passages in *Met*. XII that she thinks involve the UMM as an efficient cause, while Enrico Berti[78] adds to the list, but except for the end of XII 7, a clear reference to *Physics* VIII and the beginning of XII 10, where the general is responsible for order, all involve interpreting variations on mover (κινοῦν) as indicating the mover as efficient. I have already argued that whether or not they are taken as efficient or as final causes, the object of desire is all that need be meant in these texts. The variety of interpretations might suggest that the issue will not be readily resolved (1075a11-25, trans. Sedley):

> We must consider also in which way the nature of the whole possesses the good and the best—whether as something separated and by itself, or as its arrangement. Or is it in both ways, like an army? For an army's goodness is in its ordering, and is also the general. And more the general, since he is not due to the arrangement, but the arrangement is due to him. All things are in some joint-arrangement, but not in the same way—even creatures which swim, creatures which fly, and plants. And the arrangement is not such that one has no relation to another. They do have a relation: for all things are jointly arranged in relation to one thing. But it is as in a household, where the free have least license to act as they chance to, but all or most of what they do is arranged, while the slaves and beasts can do a little towards what is communal, but act mostly as they chance to. For that is the kind of principle that nature is of each of them. I mean, for example, that each of them must necessarily come to be dissolved; and there are likewise other things in which all share towards the whole.

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[77] Broadie (1993, 379 n. 4). These are 7.1073a5 ff., which refers back to Physics VII 10 (see above), and 8.1073a25-30 (on the basis two grammatical features, an internal accusative, 'what causes-motion with respect to the first and eternal motion', and the use of the word ὑπό, that 'what-is-moved is moved *by* something'), and 10.1075a11-25 under discussion here. She rejects 7.1072b30 as referring to efficient cause.

[78] Berti (2000, 200-206) argues that the UMM is merely an end for itself and is only an efficient cause for the first sphere and argues for a metaphorical reading of the first mover as an object of love. On the contrary, he argues that the UMM moves in the way that medicine moves as an efficient cause (*De gen. et corr*. I 7.324a35-b1, *Met*. VII 9.1034a24, XII 3.1070a14). He cites: 8.1024a15-31 for the stars being the end (discussed above) and the general (under discussion here), but also cites causitive adjectives and participles ('motive and producive' at 10.1075b31; 'as the mover does' at 10.1075b36-7, cf. 10.75b8-10). It is curious that if Aristotle thought that the UMM moved as does a science, he never draws the analogy but opts instead for the desiderative simile. Bertie's solution would appear to be Aristotelian.

Surely the general is an efficient cause of the order, so that the UMM must in some way be an efficient cause of the nature of every fish, fowl, and spud. Some neo-Platonists[79] even went so far as to argue that this shows that the UMM is Plato's demiurge. Why not? Well, implausibility aside, a different approach to the analogy is possible. When we have a simile, we never take every aspect of the simile and translate it over to the comparison, only the salient properties. What are are they? Well, it is true that a general might be an efficient cause of order in a battle, as when we contemplate Eisenhower planning D-Day with his staff, giving the invasion order, meeting with paratroopers before the invasion. That is one picture of a general. However, he may also be a final cause of the order in the sense of being an object of emulation, as in the famous Alexander mosaic, where both Alexander and Darius IV charge into the fray and create order (or disorder) by their men following their leader. Although the goal might be victory, the goal of the soldiers forming the array is to 'follow the leader." I put this forward not because I think that this is the correct interpretation of the text, but to show that another is possible and is just as compatible with Aristotle's simile.[80]

In his the *Grand Commentary* on this passage Averroes, seems to treat the UMM as the creator of the world (cf. haaliq, 1715.10 on 1075a11); yet, earlier in his commentary, he expresses this way of thinking about the UMM (1650-2, on 1073b1ff), where he takes the first ruler of the city as a model by behavior. The citizens model "their actions on those of the first ruler. I mean they make their actions follow and obey the action of the first ruler. Just as the first ruler in cities must behave in a way peculiar to him, and this must be the noblest behavior (otherwise he would be impotent and unclear), …" The simile is absurd, yet very close to the picture that Aristotle seems to endorse. The obedience is to the actions and not to the edicts. In this way, Averroes does not take the simile completely.

The texts of the *Physics* and *De caelo* on the UMM are thin, certainly thinner than would be desired after 2000 years of mulling the text. This is not to say that we cannot derive some theses of Aristotle; it is just that they may not have our desired precision. However, I have also suggested that they may be thin in a deeper way, that the context of the Physics' argument, as the capstone of an argument in mathematical kinematics, taken in a broad sense, does not lend itself to the inclusion of non-mathematical properties. Hence, from this fact and Aristotle's recognition of the difficulty of proving things about the UMM, it is not surprising that the details of how the UMM moves are absent, just as it is almost required by the project that the nature of the UMM be omitted. If we turn to the *Metaphysics*, we might expect similar limitations on our

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[79] Cf. Gerson (2005, 203-4). Sharples (2002, 10) distinguishes three possibilities, the general giving orders, the general at least knowing what his officers are up to, and the general knowing nothing of what goes on. He finds this last a very odd picture.

[80] This picture and my use of Averroes follows Natali (1997, 119=23).

ability to derive refined interpretations of the text. This may discourage some leaps of interpretation, but it is small sollace in the face of yearnings to fill the many more, great culpable and anachronistic gaps.

§6. Weak Conclusions

I have pointed in this discussion to limitations to our readings of Aristotle and to resolving conflicts in the text. This is the food of the traditional commentator whose goal is to build a coherent Aristoteliansim which he can then proclaim as his own, or occasionally reject as someone else's. For the modern reader, however, who will endorse none of these theories, it is an odd game to see how to create coherence in the texts. For us, there may be a better, more modest task. We are almost in the position of ancient writers of the 'problem book', which might ask questions like, "Why does Aristotle assert that there must be an efficient cause of eternal, natural motion," and then give a few alternative answers and finally ask whether any of them could be Aristotle and whether we should attribute any of them to Aristotle. Finally, we would need to recover what it is to read the texts without seeing the remaininng gaps. This indeed is trouble.[81]

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Avicenna On Self-Cognition and Self-Awareness

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The concepts of self-awareness (*al-shu'ūr bi al-dhāt/nafs*) and self-cognition (*ta'qulal-al-dhāt/nafs*) are fundamental to the writings of Avicenna's psychology.[1] Perhaps Avicenna was the first in the history of philosophy to distinguish between these two states of self-knowledge. In this chapter, I will show how Avicenna departs from Aristotle's theory of self-knowledge by presenting an important distinction between self-cognition and self-awareness. With this distinction, Avicenna demonstrates how the limitation of self-cognition in affirming the individuation and essentiality of self-knowledge can be overcome by postulating the state of self-awareness. Unlike self-cognition, self-awareness is identified with (a) a direct access to the identity and the individuation of the self, (b) an essential sameness between the self and its object (c) a continuous state— for to be a self is to be aware of itself. I will show that while self-awareness and self-cognition represent different states, they are connected through the epistemic moments of reflexive attention and an awareness of awareness to provide a broader understanding of self-knowledge. Finally, while Aristotle and Avicenna disagree on applying the key attributes of self-awareness to the human rational soul, they agree on

[1] This study developed primarily out of my dissertation, specifically the part which concerned Avicenna's self-awareness. See Ahmed Alwishah, "Avicenna's Philosophy of Mind: Self-Awareness and Intentionality" (Ph.D. dissertation, UCLA, 2006).

[3] All the translations of Aristotle's works used hereafter are taken from *The Complete Works of Aristotle*, ed. Jonathan Barnes, (Princeton: Princeton University Press, 1984).

applying them to the divine intellect. However, I will show that Avicenna's characterization of the object of divine self-thinking is substantially different from Aristotle's account. Avicenna's view of the distinction and relation between self-awareness and self-cognition provides both a critical understanding and a necessary assessment of the complexity of human self-knowledge.

The Distinction Between the Self-Cognition and Self-Awareness

At the outset it is important to sketch Aristotle's view of self-knowledge and to see how it is essentially distinguished from Avicenna's notions of self-cognition and self-awareness. In *De Anima* III.4, 429b 8-9, Aristotle asserts that the intellect is possible until it thinks. This sense of possibility is different from the possibility that "precedes the acquisition of knowledge by learning or discovery," it is the possibility to think itself. Aristotle offers two reasons why the intellect thinks itself and why the intellect is the same as its object.[2] First, the object of the thought is immaterial, "thought is itself thinkable in exactly the same way as its objects are. For in the case of objects which involve no matter, what thinks and what is thought are identical" (*De Anima* 430a 3-5).[3] Aristotle makes it clear that there are two kinds of objects of thought; one "with matter" and other "without matter," and only the latter is the object of self-thinking. That is to say when the intellect becomes an object of its thinking and given that this object is immaterial, the intellect becomes one with it. Second, the intellect "shares the nature of the object of thought" (*Metaphysics* 1072b 20). The intellect grasps itself as an object of

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[3] All the translations of Aristotle's works used hereafter are taken from *The Complete Works of Aristotle*, ed. Jonathan Barnes, (Princeton: Princeton University Press, 1984).

thought and thus thinks itself.[4] But does the intellect always think itself? For Aristotle, the answer to this question is contingent upon whether we are speaking of the passive or active intellect. In *De Anima* III. 430a5, Aristotle claims that the intellect which lacks actuality is not always thinking. In contrast, at 430a20-25, Aristotle judges the active intellect which is immortal to be always in the state of thinking.

Many points can be derived from Aristotle's remarks on self-knowledge, but in relation to the scope of this study, one can deduce three key principles:

A. When the intellect thinks of an object, the intellect thinks itself.
B. If the object of the intellect is immaterial, the intellect and its object are one and the same.
C. The intellect (with exception of the active intellect) is not always thinking itself.

Throughout his corpus, Avicenna endorses these three principles of Aristotle's notion of self-thinking. With respect to (A), Avicenna upholds that "if the intellect is cognizing something else, it must cognize itself."[5] Following Aristotle, Avicenna affirms that in cognizing an object the intellect must cognize itself. Like many previous philosophers, Avicenna affirms (B). Avicenna's *al-Ishārāt* explicitly states that "that which (the intellect) is in itself is denuded from the material attachments . . . cognizes itself."[6] With regard to (C), Avicenna's *al-Mubāḥathāt* also insists that "our intellects do not cognize ourselves always, but ourselves are aware of their existents always. For if my self cognizes in actuality something other than itself, it is always aware that it is cognizing as

[4] Klaus Oehler rightfully interprets this claim as "*Nous* knows itself by means of its participation in the nature of its object. The nature of its object is to be knowable. When *nous* participates in it, it assumes the nature of its object, which thereby becomes common to both." See Klaus Oehler "Aristotle on Self-Knowledge," *Proceeding of the American Philosophical Society*, Vol. 118, No 6 (1974), 499.
[5] Avicenna, *al-Mubāḥathāt*, ed. M. Bīdārfar (Qum: Baydār,1992), §300,121.
[6] Avicenna, *al-Ishārāt wa al-Tanbihāt* II, ed. S. Dunyā (Cairo: Dār al-Ma'ārif, 1957), 371.

long as it is cognizing."[7] While he affirms these three points, Avicenna (as we will show) recognizes that Aristotle's notion of self-thinking presents one aspect of self-knowledge and fails to address the other aspects of self-knowledge, i.e., self-awareness.

In what follows I will show that two problems lead Avicenna to distinguish between self-awareness and self-cognition. One is related to the individuation of self-cognition and the other is linked to the relation between the intellect and the other internal faculties. But before we examine these two problems in detail, it is important to mention that Avicenna paves the way for this distinction by explaining the difference between the term "awareness" (*shu'ūr*) and the term "cognition" (*ta'aqul*).[8] Unlike "awareness," "cognition" requires the presence (*istiḥḍār*) of an object (an intelligible or intelligible form) in the intellect.[9] That is to say, to cognize x, x must be present as an intelligible form or concept in the intellect, where being aware of x requires the presence of neither in the self. Awareness is a precognitive stage that is primitive and intrinsic to the existence of the self.

Self-Cognition and the Problem of Individuation

In *al-Mubāḥathāt,* Bahmanyār, Avicenna's disciple, presents Avicenna with the question of how one can cognize her/his self and whether it is possible to attain self-cognition within an individual self?[10] On the one hand, self-cognition requires an

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[7] *al-Mubāḥathāt*, §550, 186.
[8] It is important to note that Avicenna, in *al- Ta'liqāt,* occasionally uses the terms self-cognition and self-awareness interchangeably. For example, he asserts that "the soul cognizes itself and its cognition to itself is essential." See Avicenna, *al-Ta'līqāt*, ed. H. al-'Ubaydī (Baghdad: Bayt al-Ḥikmah, 2002), §52, 118, 113, 140. Elsewhere, Avicenna insists that "the existence of the cognitive faculty is the same as its cognition of itself" *al-Ta'līqāt*, §61,122.
[9] *al-Mubāḥathāt*, §239, 108.
[10] Ibid. §282, 118.

intelligible, but based on Aristotle's view in *Posterior Analytics* I.31, intelligibles must be universals–since universals are the proper objects of our understanding. With these assumptions in mind, Bahmanyār claims:

1. To cognize something is to have it as an abstract intelligible.
2. Intelligibles are universals concepts.
3. The cognition of myself is merely a cognition of an abstract universal intelligible of the self.
4. But an abstract universal intelligible of the self is different from my individual self.
5. Hence, my self-cognition fails to cognize my individual self.[11]

Bahmanyār's argument rests on the assumption that like any form of cognition, self-cognition must have a universal object and hence its grasp of the self is a grasp of the universal object of the self and not the individual self. A similar argument can be stated against Aristotle's principle (B). For if (B) is true and that the object of the intellect is universal, then the intellect is not thinking of an individual intellect. Avicenna is primarily concerned with the individual self more than the individual intellect and thus directs his response to Bahmanyār's challenge by proposing the following:

> If one does not call the awareness of his self a "cognition"—for "cognition" signifies the universal abstract type of awareness — then one may state that my awareness of my self is not a cognition and that I am not cognizing my self.[12]

Self-cognition has no direct access to the individual self and this type of directness is constrained only to self-awareness. Avicenna's proposal focuses the debate upon which part of the human soul is responsible for self-awareness and in which sense it is different from the intellect. As Bahmanyār claims, given that my intellect is like "the faculty which is aware in me of my individual self" (*al-quwah al-latī tashʿur minī bi-dhātī al-juzʾī*), and it is immaterial—and needs no intermediary in cognizing itself, then why cannot it

[11] *al-Mubāḥathāt*, § 282, 118.
[12] Ibid. § 283, 118.

cognize my individual self?[13] For Avicenna it is not clear that these share similar attributes. For, while Avicenna consistently affirms the attribute of immateriality to the intellect, he is unwilling to ascribe the attribute of "immediacy to an individual self" to the intellect. For the first time throughout his writings, Avicenna acknowledges that the cognitive faculty of intellect is different from "the faculty which is aware of the totality of the self"[14](*al-shu'ūr al-mujmal*.) He identifies the latter to be the "rational soul" (*al-nafs al-nātiqa*).

But what is unique about the rational soul and why cannot it be taken merely as an intellect? An examination of Avicenna's remarks on the rational soul reveals that it signifies different attributes of the human soul and in addition to being a cognitive faculty, it is endowed with the ability of being aware of its existence. In *'Uyūn al-Ḥikmah*, Avicenna distinguishes the rational soul according to three attributes and each is defined by the degree of its participation with a given body.[15]

(a) An attribute that relates to the activity of the awareness; this activity is "produced solely by the rational soul itself without the participation of the body."[16]

(b) An attribute that relates to the activities produced by the rational soul with the participation of the body and its faculties, such as cognition (*taʿaqul*), observation (*ruʾiya*) of particular objects and the ethical judgments.

(c) An attribute that relates to the activities that are taking place in the body with the participation of the rational soul such as laughter, crying, shyness, and compassion.

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[13] *al-Mubāḥathāt*, §286, 119.
[14] Ibid. §287, 119.
[15] Avicenna, *'Uyūn al-Ḥikmah*, ed. Muwafaq Fawzī al-Jabr (Dar al-yanābī': Damascus, 1996), 80.
[16] Ibid. 80.

Clearly, Avicenna treats the part of the soul pertaining to awareness distinctively from that which concerns cognition. Every act of cognition must be included within this primitive awareness but it is not necessary that the cognition of one's awareness must be cognized by the intellect. In *al-Risālah al-aḍḥawiyyah,* Avicenna claims that "the rational soul cognizes its faculty (intellect) and it cognizes that it is cognizing and there is no intermediary between it and its faculty nor between itself and that it is cognizing another faculty.[17] In contrast to Aristotle, there is an attribute in the rational soul that is aware of every activity occurring in the soul or with the participation of the body, and such an attribute is aware of the existence of the soul regardless of whether the cognitive faculty thinks itself or an object or is not thinking at all.[18]

The root of the disagreement between Avicenna and Aristotle lies in their different views of what constitutes the earliest stage of the rational soul. While Avicenna agrees with Aristotle that the rational soul at its earliest stage is *hylic* and thereby denuded from any intelligible forms (*ṣuwar al-maʿqūlāt*), Avicenna claims that it is not a real or actual entity and has no content of its own. For Aristotle, as we saw earlier, the passive intellect thinks itself only when it thinks of an object. He identifies the passive intellect to be that

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[17] *al-Risālah al-ḍḥawiyyah fī al-maʻād,* 175.

[18] In different versions of floating man argument, Avicenna identifies "that which is aware of the individual self" to be a specific aspect of the soul in which he refers to as *anniyyah*. In the second version of floating man and its relevant passages, he uses *anniyyah* to mean something representing the identity and the core of what it is to be a human. Avicenna defines what he calls the persisting (*al-thabitah) anniyyah* to be "that which if it is assumed to be existing and the other things which pertain to a human are assumed to be annihilated, then the core (*al-ḥāṣil*) and identity (*al-huwiyyah*) of being human continues to exist." See Avicenna, *al-Risālah al al-adḥawiyyah fī al-Maʻād*, ed. F. Lucchetta (Padova: Editrice Antenore, 1969), 13. Later, Avicenna affirms that my awareness of my *anniyyah* is prior to my awareness of the existence of my external or internal organs (*al-Mubāḥathāt*, §62, 59). The term *anniyyah* denotes a specific aspect of the rational soul, namely that which represents the identity and the continuous mode of awareness of one's existence.

(a) "which can have no nature of its own, other than that of having a certain capacity," and (b) it "is, before it thinks, not actually any real thing" (429a 21-24). In his commentary on *De Anima*, Alexander characterizes the material (passive) intellect to be that "which is not yet thinking, but has the potentiality to come to be like this" and that "it is without qualification a potentiality for an actuality . . . capable of receiving forms and thoughts."[19] For Alexander, the passive intellect *(nous pathetikos*) is not an extant thing, but rather a disposition to perceive the intelligible forms. Avicenna takes Alexander to be interpreting (b) "the intellect before it thinks is nothing."[20] In his book *al-Taʿliqāt ʿalā Ḥawāshī Kitāb al-Nafs,* Avicenna shares Theophrastus' concern that to think of the intellect as nothing before it thinks leads to absurdity, namely that: (a) if the intellect does not think, (b) then it is nothing and (c) if that is true, then when the intellect thinks other thing, "the intellect will be another thing and not itself." [21]

When Aristotle states that this faculty 'is not a thing like anything,' he does not mean that the rational soul has neither essential existence nor actual existence." [22] Rather, that which has no essential existence lacks the potentiality to be and to be actual.[23] Having established this claim, Avicenna takes (b) to mean first that the passive intellect is nothing like any of its acquired intelligible forms by referring to Aristotle's idea that in order for the intellect to think of all the forms it must be nothing definite, and "nothing

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[19] Alexander of Aphrodisias, *Supplement to "On the Soul,"* trans. R.W. Sharples (Ithaca: Cornell University Press, 2004) 106; 26-27,107; 8-19.

[20] Avicenna, *al-Taʿliqāt ʿalā Ḥawāshī Kitāb al-Nafs li-Arisṭūṭālīs* in *Arisṭū 'inda al-'Arab,* ed 'A. Badawī (Cairo: Dār al-Nahḍah, 1947), 100.

[21] See Priscian of Lydia, *Paraphrase of Theophrastus' Discourse* On the Soul 2-8-9 (*Suppl. Arist.* Vol.1.2 p.30.22-31.2 Bywater), 312, in *Theophrastus of Eresus. Sources for His Life, Writings, Thought and Influence,* ed Fortenbaugh William (Leiden: Brill, 1992).

[22] *al-Taʿliqāt ʿalā Ḥawāshī,* 100.

[23] Ibid.

definite" does not mean in itself a thing. Second, at this early stage, the intellect lacks activity, for it is not acting upon any of its intelligible forms (*ṣuwar al-maʿqūlāt*).[24] Beyond its existential setting, Avicenna rejects the idea that the passive intellect has no positive nature of its own. He insists that it "has attributes (*ṣifah*) and modes (*ḥāl*) that by their nature are free from any mixture (with other properties).[25] Based on what we have discussed it seems what Avicenna means by "modes" and "attributes" are "essential existents" and "self-awareness" respectively. The actualization of the passive intellect is a further affirmation of the presence of self-awareness and not a reason for it to be.

According to Avicenna's notion of the rational soul, if my intellect cognizes itself, I must be aware that I have an intellect and it is cognizing itself. In contrast, according to Aristotle's notion rational soul, if my intellect thinks itself, it is not clear whether I am aware that I have an intellect that is thinking itself since what I am thinking of at the moment of the actualization is that my intellect is thinking of an object.

Self-Cognition and The Problem of Identity

Another issue that invites Avicenna to draw a distinction between self-awareness and self-cognition pertains to the relation between the cognitive faculty and another faculty, the faculty of estimation in particular. In *al-Mubāḥathāt,* this issue is presented with the following questions:

> Are we cognizing ourselves? It is not clear yet whether we are cognizing it by a material faculty or not? Does my cognitive faculty exist in a body or not? And if it is, then why cannot be the case that my cognitive faculty operates within the faculty of estimation in such a way that my estimative faculty is aware of it in the same way that the cognitive faculty is aware of the estimative faculty? Hence, it will not be the case

[24] Ibid.
[25] Ibid.

> that the cognitive faculty is aware of itself but rather it is aware of it through another in the same manner that the faculty of estimation is not aware of itself through itself but it aware of it through the intellect.[26]

It is not surprising that the faculty of estimation, in this context, is used as parallel to the intellect. In Avicenna's view, there is a strong affinity between the intellect and the faculty of estimation. This faculty works directly with the intellect and the practical intellect benefits from its perceptual contents.[27] In addition, Avicenna considers this faculty in animals as equivalent to the faculty of the intellect and in the same text Avicenna explicitly states that animals are aware of their existence in virtue of having the faculty of estimation.[28]

In the passage above, the main question "are we cognizing ourselves?" is immediately followed by a hypothetical case designed to question the distinctiveness of the cognitive faculty as opposed to the estimative faculty. The hypothetical case proceeds in two steps. First, the faculty of the intellect is aware of the faculty of estimation and that the faculty of estimation is aware of itself through the faculty of the intellect. Second, given that both faculties share a dynamic relation and influence each other, there is no reason why one is not to assume that the estimation is aware of the intellect and that the intellect is aware of itself through this faculty. I take the last point to be an attempt to show that self-cognition of the intellect can be fulfilled by having an intermediary faculty, i.e., the faculty of estimation. Furthermore and in response to the main question above, Avicenna emphasizes the dynamic relation that the intellect has with the internal senses and the possibility of having it become aware of itself through an intermediary

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[26] *al-Mubāḥathāt,* §438, 159.
[27] According to Avicenna "the estimative faculty serves the particular intellect." See *al-Nafs*, 50.
[28] According to Avicenna "man is aware of itself and an animal aware of itself in virtues of its estimative faculty" see *al-Mubāḥathāt,* §519, 179.

faculty makes it less likely to cognize the self in itself as a pure entity. At the end of this argument, Avicenna once again reminds us of his earlier point that the intellect is a faculty designed to grasp the universal and it is not qualified to cognize the individual self.

Having addressed the difficulty and complexity of having the intellect cognizing the self in itself as individual self, Avicenna stipulates that it is only through self-awareness that one can have direct access to one's self. He justifies this claim by arguing that "with respect to the awareness you are aware of your identity and without being aware of any of your faculties— for [if you are aware of a faculty] then this faculty becomes the thing in which you are aware of and not your self."[29] By "any of your faculties," Avicenna includes the intellect (given that he already excluded cognition from awareness). Thus, and unlike self-awareness where identity becomes self-evident to the one who is aware, identity, in the case of self-cognition, is concomitant with one who thinks the thought. In other words, with self-cognition, my identity is confused with the act of cognition and it is not a pure identification of what I am. Avicenna even uses the term "cognitive confusion" (*al-khalṭ al-'aqlī*) to signify the process in which one can attain an abstract concept of something other than itself.[30]

In addition, directness is not required in self-cognition, for I must have an object of cognition in order to cognize my self. As Avicenna states "he who cognizes something other than himself cognizing must cognize himself."[31] This certainly corresponds to Aristotle's principle (A). Another potential source is Aristotle's claim in the *Metaphysics*

[29] *al-Mubāḥathāt,* §440, 159.
[30] *al-Mubāḥathāt,* §515, 178.
[31] *al-Mubāḥathāt*, §300, 122.

that "knowledge and perception, and opinion and understanding have always something else as their object" (1074 b 36). Aristotle denies that there is direct access to the subject in all these functions. Klaus Oehler infers from this passage that Aristotle "allows for the reflexivity of these functions. It is a sort of self-reference which can come about only through reference to a distinct object."[32] For Avicenna, intellect cognizes itself not directly, but rather concomitantly, by having an object other than itself. This belief leads Avicenna to question the use of the term "cognition" in a reflexive sense. He states that "if it becomes evident to us that our essences are present to ourselves without the mediation of the cognition, then what is the need to say that 'we cognize ourselves and through it (the cognition) we realize that we have the essences of ourselves.'"[33] The awareness of the essence of one's self is intrinsic to the self and that the act of cognition or any other act adds nothing to the presence of the self to itself.

Contrary to self-cognition, in the case of self-awareness, I am aware of nothing but myself and this awareness consists in a reference to myself. Such a reference can be described as reflexive in the sense that I conceive myself as being myself and nothing more, i.e., "to be I as I" (*takūn anta anta*).[34] For Avicenna, the referential "I" is immune from any failure of reference for there is a direct reference between my awareness and the thing that I am aware of, my awareness of my 'I' is same as my awareness.

In this sense, Avicenna's view seems to stand in stark contrast to Kant's view that the 'I' is known "only through the thoughts which are its predicates, and of it, apart from

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[32] Klaus Oehler " Aristotle on Self-Knowledge" *Proceedings of the American Philosophical Society*, vol.1 118, No. 6 (Dec.27, 1974), 497.
[33] *al-Mubāḥathāt*, §436, 158.
[34] *Ishārāt*, II, 347.

them, we cannot have any concept at whatever."[35] For Avicenna the 'I' is known to its subject independently from any predicate attached to it, "my awareness of my 'I' (*anā*) as the one who has this awareness" is not due to the belief that I have a heart, brain or any other bodily organs, but rather it is in virtue of being aware of my 'I' in the essence (*istash'artahu inhu anā bi-al-dhāt*).[36] Self-awareness is the kind of awareness where no action (*fi'l*), activity, or even a thought, mediates between the self and its awareness of itself. Avicenna claims that by apprehending certain activities one must presuppose the existence of the self without necessarily proving it, and this special knowledge is inherent in the self and not in the act of cognition:

> when I say 'I act,' I express my self-awareness [along the act itself]; otherwise how do I know that I am the one who is doing the act, except that I consider my awareness to my self first, then I consider the act. All this without considering anything external to my awareness of my self.[37]

Self-awareness is the foundation for my belief that I am the one who is thinking of x, acting upon or receiving x. By seeing a tree in my garden or thinking of Euclid's fifth postulate, I become directly aware of the fact that I am the one who sees the tree or the one who thinks of the fifth postulate. With that in mind, there is no distinction between the self and the activity of being aware of oneself. The objection to this view is that by being aware of my thoughts or my actions, I am not necessarily aware of a real entity such as the self or the persisting self that is the source of these thoughts. Rather, I am aware of the activity itself and nothing else. To borrow Hume's words, I am aware of a

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[35] Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (Oxford: Oxford University Press, 1929) 331, 337.
[36] *al-Nafs*, 252.
[37] *al-Ta'liqāt*, §60, 122.

"bundle or collection of different perceptions."[38]

In *al-Ta'liqāt* Avicenna examines this question in great detail. He begins his examination by arguing that "if there is an affect (*athar*) from myself in myself, then I must be aware of two things (a) myself and (b) an affect from myself. He explains that "the affect by which I become aware of myself would have not an affect of my awareness of myself without the existence of myself."[39] But if the existence of myself is already established then there is no need to be aware of myself by having an affect other than the existence of myself. Hence, the existence of myself requires no affect to be self-evident to me simply because such an affect would fail to do that without, one way or another, assuming the existence of myself:

> If I become aware of myself, and this awareness comes as result of an affect from within myself, then, how do I know that this affect is an affect that emanates from myself except that I know myself prior to that (the act of awareness). Thus, I will infer from this affect—by having a sign (*'alāmah*) among many signs— that this affect is an affect of my self. And if I have an affect "from myself" "in myself" and judge it to be the affect of myself, then I need to synthesize between that affect and myself; so that I judge that this affect is nothing but myself and my awareness of my self which proceeds any affect. [40]

What we can derive from the passage above is that (a) there must be a feature or sign that indicates that "awareness of a self" is an awareness of myself; and (b) given that the existence of the self and the awareness of it are inseparable, the assumption that some activity has taken place in the self of an activity will be secondary to the "awareness of a self" and neither a primary nor a direct act of knowing it. Thus in the case of the awareness of my self, I have direct access to my object, i.e., myself. The fact that there is

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[38] David Hume, *A Treatise on Human Nature*, ed. L. A. Sebly-Bigge (London: Oxford University Press, 1978), 252.
[39] *al-Ta'liqāt*, §40, 114.
[40] Ibid.

nothing that mediates between myself and my awareness of myself suggests that this relation requires no inference or reasoning but rather the mere fact of my existence.[41] The intrinsic relation between the existence and awareness of the self is explored further when Avicenna discusses the sameness thesis.

The Sameness Thesis in Human and Divine intellects

Another important aspect that distinguishes self-awareness from self-cognition is that the former has an essential sameness between the subject and the object of its awareness, while the latter has an accidental relation. Avicenna expresses this sameness relation by employing three formulas: (a) "identity between the subject and the object of this awareness" (*hawiyyah bayn al-shā'r wa al-mash'ūr*), (b) "our awareness of ourselves is itself our existence" (*shu''ūurunā bi-dhātinā huwa nafsu wujūdināa)*, and (c) "intellect, intelligizer, and intelligible are one thing" (*'aql wal 'āqil* wal *ma'qūl shayʾā wāḥdā*). Avicenna introduces the first formula in the following passage:

> There must be an identity (*huwiyyah*) between the subject and the object of this awareness (*al-shā'r wa al-mash'ūr*) . . . The subject that is aware (*al-shā'r wa*) of this awareness and the object of the awareness (*wa al-mash'ūr*), namely, the self, are the same. Thus, the relation between them is not an otherness relation (*ghayriyyah*) in any possible way, rather it is an identity (*huwiyyah*); for if you do not know yourself you will not know that the object of awareness of yourself (*al-mash'ūr bihi*) is yourself.[42]

In being aware of my self I am aware of the identity relation between being an object and being a subject of this awareness:

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[41] The attribute of the directness and notion that no medium is required in order to become self-aware have been already discussed in Alwishah's dissertation and subsequently by Deborah Black. See Deborah Black, "Avicenna on Self-Awareness and Knowing that One Knows," in *The Unity of Science in the Arabic Tradition*, ed. S. Rahman, T. Street, and H. Tahiri (Dordrecht: Springer Science, 2008,) 65.
[42] *al-Ta'līqāt*. §59, 120-121.

1. The self is aware of its object.
2. The object of this awareness is the self ("object of awareness of yourself is yourself").
3. The self is the same as its object.

Here Avicenna's justification of the sameness relation between the subject and the object of awareness is inspired by Aristotle's principle (B)—that "in the case of objects which involve no matter, what thinks and what is thought are identical" (430a 3-4). Elsewhere, Avicenna applies this principle to self-awareness by asserting that "my awareness of my self does not involve any material instrument and the subject and the object of the awareness must be one and the same."[43] Avicenna establishes this claim on a set of metaphysical assumptions: (a) Existent things are divided into that which is exist for itself, and that which is exist for the others. (b) the former must be aware of itself by itself and not by means of the other, while the latter is aware of itself by means of other. (c) Immaterial thing is belong to the first category and material things are belong to the other. (d) The self is immaterial, thus it must be aware of itself. [44]

However, Avicenna's *aI-Ishārāt* draws our attention that one should not conclude from (c) and (d) that every immaterial entity has the ability to cognize.[45]Such a conclusion, in his view, may lead to the following objection:

Perhaps you say that when the material form in its subsisting [object] is abstracted in the intellect, then that which prevents[46] it [from being immaterial], would be removed. [If that is the case] then why are we not ascribing to it the ability of cognizing (*taʿaqul*)?[47]

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[43] Ibid. §76, 127.
[44] Ibid. §85, 130.
[45] Recently, Peter Adamson examines, in a great length, the connection between intellection and immateriality in Avicenna's *aI-Ishārāt* and his Commentators views, al-Razi in particular. See Peter Adamson, "Avicenna and his Commentators on Human and Divine Self-Intellection," in *The Arabic, Hebrew and Latin Reception of Avicenna's Metaphysics,* ed D. N Hasse and A. Bertolacci (Berlin: De Gruyter, 2012) 97-122.

The hidden premise in this objection is the assumption that every immaterial has the ability to cognize. Thus the objection can be simply formulated in the following:

A. If x is abstracted from its material attachments, x becomes an immaterial.
B. Every immaterial has the ability to cognize.
C. Then x has the ability to cognize.

In his response to this anticipated objection, Avicenna limits (B) only to the category of the immaterial that adheres to two conditions: (a) being self-subsistent substance and (b) being susceptible (*qābila)* to intelligible concepts.[48] I assume that "intelligible concepts" includes the concept of the subject itself. Hence it seems that (b) primarily prevents other immaterial objects from cognizing other immaterial object or themselves. For, immaterial objects, such as the celestial object, meet (a), but they lack the ability to grasp the intelligible concepts. The conditions are restricted only to human intellect (i.e., divine intellect cognizes the principles of all existent but is not susceptible to the intelligible concepts).

After Avicenna establishes the identity relation between subject and the object of the awareness, he proceeds to present a second formula of sameness between the existence of the self and its awareness of itself. He makes it clear in this formula that to be a self is to be aware of itself. This inextricable relation between existence and the awareness of the self is expressed by Avicenna's perception that "the self-awareness of the essence of the self is intrinsic (*gharizī*) to the self, and [it] is the same as its existence; thus there is no

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[46] Tusi rightfully explains "that which prevents it" (*al-maʿnā al-māniʿ*) to be "the conjoining with matter." See his comments in *aI-Ishārāt*, II, 422.

[47] In *aI-Ishārāt,* II, 422, Adamson presents somewhat different translations of this passage "Perhaps you will say that when the form that subsists materially is abstracted in the intellect, then the characteristic that prevents [it from itself engaging in intellection] is removed. So what stop us from ascribing intellection to it." This is a very difficult text and Adamson presents a sensible and creative translation of it, nevertheless I disagree with him on translating key concepts, especially *qawām, al-maʿnā al-māni', ta'aqul*.

[48] See *aI-Ishārāt*, II, 423.

need for something external to the [self] for the self to be aware of itself."[49]This concomitant relation between self-awareness and the existence of the essence *(anniyyah)* is presented most strikingly in three places throughout *al-Ta'liqāt*: (a) "When the self exists, self-awareness exists with it,"[50] (b) "For the existence of the self is the awareness of itself, and these concepts are both inextricable."[51] (c) "Our awareness of our selves is itself our existence.[52] In (b) and (c), Avicenna invokes a robust and inextricable relation between "being a self" and "being aware of that which is a self":

1. The self-awareness of the essence of the self is the existence of the self.
2. The self-awareness of the self is intrinsic to the essence of the self.
3. It follows that (2) is true if one realizes that (1) is a necessary condition for knowing the existence of the self.

Having examined these two formulas of the sameness, we may conclude that the sameness relation between the self and its awareness of itself is essential and intrinsic to the existence of the self.[53] In contrast, self-cognition consists of an accidental sameness between the intellect and its intelligibles. Avicenna explicitly states that "if the intellect [in act] cognizes something, it cognizes that is cognizing and this is a cognition of itself"[54] In this sense, Avicenna restates Aristotle's principle (A)—"thought is itself thinkable in exactly the same way as its objects are (*De Anima* III, 4 430a 3). For both philosophers, the sameness between the intellect and its intelligible is not direct or essential but rather an accidental sameness.[55] As Frank Lewis rightfully suggests with

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[49] *al-Ta'līqāt*, §72, 125.
[50] Ibid. §34, 111.
[51] Ibid. §61, 122.
[52] Ibid. §70, 125.
[53] See Alwishah, 70,81 and Black, 65.
[54] *al-Isharat,* II. 415-416.
[55] Alexander emphasizes this interpretation by stating that "by thinking it (the intellect) becomes the very thing which it is able to think. Primarily (*proêgoumenôs*) and in itself, it is thinking the

respect to Aristotle, the sameness thesis holds not between intellect and its object, "but more elaborately between the actualization of the passive power in *nous* for being brought to think and the actualization in the object of thought of its active power for bringing *nous* to think it."[56] Avicenna presents a third formula of sameness that captures the relation between what he refers to as the intellect, intelligizer,[57] and intelligible (*'aql wal 'āqil* wal *ma'qūl*). While the early formulas are applicable to human intellect, this formula is discussed primarily in relation to the divine intellect. While it is true that at one point in *al-Mubāḥathāt*, Avicenna applies this formula to the human intellect, he also categorically applies it to the divine intellect.[58] As a matter of fact, in *al-Ta'līqāt*, Avicenna insists that this formula must be restricted to the First (God): "He who cognizes itself must be [at once] the intellect, intelligizer, and intelligible, and this stipulation (*ḥukum*) is true only with respect to the First (God)."[59] But, how do these three aspects apply to the divine essence and what does each aspect signify? In *Ilāhiyyāt*[60] and *al-Ta'līqāt*,[61] Avicenna offers several remarks addressing this question. His remarks suggest that God is intellect, intelligizer and intelligible in the following manner:

1. God's essence is an identity denuded of matter, and therefore it is an intellect.

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intelligible from whenever it thinks, but incidentally (*kata sumbebêkos*) [it is thinking] itself, because it belongs to it incidentally that it becomes the thing it thinks whenever it thinks. (Alexander *De Anima* 86,14-23) See Richard Sorabji, *Philosophy of the Commentators 200-600 AD* (New York: Cornell University Press, 2005), 136.

[56] Lewis, F. A., "Self-Knowledge" in Aristotle, *Topoi* 15 (1995), 45.

[57] By "intelligizer" I mean the one who grasp his/her own intellect.

[58] In *al-Mubāḥathāt,* Avicenna states that "the essence and the quiddity of the intellect in itself necessitates that it is to be an intellect, intelligizer and intelligible", 308.

[59] *al-Ta'līqāt,* §276, 271.

[60] See Avicenna *al-Shifā', Ilāhiyyāt,* ed and trans. Michael Marmura (Utah: Brigham, Young University Press. 2005), 285.

[61] See *al-Ta'līqāt* §252, 259; §271, 267; §279, 273

2. God grasps his own essence, and so, by (1), his own intellect. To complicate this point further: God's grasping his own essence, which is an intellect, itself constitutes his essence, and its being an intellect.

3. God is both the agent and patient of the act of intellectual grasping.

Prior to Avicenna, Aristotle presents three aspects of sameness by stating that divine intellect "must be itself that thoughts thinks (since it is the most excellent of things), and its thinking is a thinking on thinking" (1074b 33-35). For Aristotle, the divine intellect iis the object of its thought and as explained earlier in *Metaphysics* XII.7, the divine intellect is the best possible object of thought. That is to say, the divine intellect is thinking of x and x is nothing but the divine intellect itself, therefore the divine intellect thinks itself. Avicenna rephrases Aristotle's formula "thinking is a thinking of thinking" with "intellect, intelligizer, and intelligible." In both formulas, the divine intellect is identical with its activity and its object. The identity relation is essential and not accidental for both believe that the divine intellect is pure actuality and does not require an external object or content to think.

In addition, a careful examination of their views reveals that there is a striking similarity between Aristotle's notion of divine self-thinking and Avicenna's notion of self-awareness. Both notions have the attribute of directness, essential sameness, and (as we will shall see soon) the continuity of thinking/awareness. With respect to last point, Aristotle argues in *De Anima* that the active intellect "does not sometime think and sometime not think. When separated it alone is just what it is, and this alone is immortal and eternal . . . and without this nothing thinks" (430a 20-25). Avicenna, on the other hand, singles out the attribute of continuity as a key attribute in the notion of self-awareness. Avicenna's view logically entails that God is always thinking and that He is

eternal. But to substantiate this point with textual evidence one may refer to *al-Ta'līqāt* where Avicenna asserts that "the existence of the First is His cognition of his essence . . . His existence is His cognition of it (his essence). His existence is perpetual, hence, His cognition of His existence is perpetual."[62]

Having established the similarity, it is important to point out that there is a crucial difference between their notions of divine self-thinking They disagree on how to define the object of divine self-thinking. For Aristotle, the content of the divine intellect's thinking of itself is not clear, especially whether it has the same object, i.e., Himself, over and over. A *prima facie* reading of the phrase of "thinking is a thinking on thinking" suggests, and as some scholars have noted,[63] that the divine intellect thinks nothing but itself and that the divine activity is a pure self-contemplation, or what Richard Norman refers to as "a sort of heavenly Narcissus."[64] To avoid the judgment of self-contemplation, Avicenna denies that the object of God's thinking of Himself is only Himself. Instead Avicenna argues that in cognizing His essence, God cognizes at once that He is the principle of every existent and to everything that is posterior to His essence.[65] Therefore, "because God cognizes his essence and He is the principle of all things, He cognizes by His essence all things."[66] Furthermore and by being the principle of every existent, God causes the existence of all the existents and whatever God causes, God cognizes. Avicenna denies that God cognizes His essence first then cognizes that He

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[62] *al-Ta'līqāt,* §279, 273.
[63] According to De Konick " Self-contemplation in the anthropomorphic sense . . . is a plain absurdity to antone. So however, is the Aristotelian God as read, say by Eduard Zeller, W. D. Ross or, more recently, Klaus Oehler. See Thomas De Konick, "Aristotle on God as Thought Thinking Itself" *The Review of Metaphysics*, Vol. 47, No.3 1994, 472.
[64] Richard Norman, "Aristotle's Philosopher-God," *Phronesis*, vol.14, No. 1 (1969), 63.
[65] *llāhiyyāht* p. 292, a revised a translation of M. Marmura, see also *al-Ishārāt* III, 278.
[66] Ibid. 291, see also 288, Marmura's translation.

is the principle of all existences.[67] For Avicenna, the cognition of His essence and that He is the principle of all existents are one and the same cognition.

We can conclude from above that while Aristotle's notion of self-thinking fails to communicate the key attributes of Avicenna's notion of self-awareness— the attribute of the directness, essential sameness, and continuity—his notion of divine self-thinking decisively embodies these attributes.

The Continuity of Self-Awareness

One of the logical conclusions that can be drawn from the sameness thesis, the second formula in particular, is that the self is aware of itself continuously. But does this conclusion extend to self-cognition? Avicenna clearly affirms in *al-Mubāḥathāt* that "our intellects do not cognize ourselves always, but ourselves aware of their existents always. For if my self cognizes in actuality something other than itself, it is always aware that it is cognizing as long as it is cognizing."[68] Thus, the self is always aware of itself and it is aware of the act of its cognition, but its cognition of it as a self is not continuous. In addition to this argument, Avicenna presents a robust notion of the continuity of self-awareness. The self is aware of itself continuously and aware of others in virtue of being aware of itself. In *al-Taʿliqāt*, Avicenna explicitly argues that "the self is aware of itself in an absolute state and without any condition at all. The self is aware of itself always and not intermittently."[69] Avicenna goes so far as to claim that one is aware of his/her self in

[67] *al-Taʿlīqāt,* §252, 259.
[68] *al-Mubāḥathāt,* §550, 185-186; see also Alwishah (83) and Black (65) for further discussion of this passage.
[69] *al-Taʿliqāt* 34,111.

states other than the state of consciousness by presenting the following case:

> Return to yourself and reflect whether, being [mentally and physically] sound, or even in another state, where, however, you discern a thing correctly, you would be oblivious to the existence of your essence and would not affirm yourself. To my mind, this does not happen to an intelligent man, so much so that not even the sleeper in his sleep, and the person drunk, will lack knowledge of his self. For a person [in all of these cases], his self would not be oblivious to himself, even if a representation of himself has not been established in his memory.

In this passage Avicenna shows that the failure of representation results from having no interaction between the intellect—which always possesses the activity of awareness—and the corporeal memory. The failure of memory to capture this activity would not prevent one from being aware of oneself, for the knowledge of oneself is disembodied pure content and need not be imprinted in a corporeal faculty.

This is a good point which summarizes our results so far. We have shown how Avicenna distinguishes between self-awareness and self-cognition. This distinction can be recapitulated in the following table:

Self-Cognition	Self-Awareness
1. It must have an object. 2. It has no direct access to an individual self. 3. It has an accidental sameness relation between the subject and the object. 4. It does not always cognize the self.	1. It does not necessarily have an object. 2. It must have direct access to an individual self. 3. It has an essential sameness relation between the subject and the object. 4. Has a continues awareness of the self.

From this distinction we can see that self-awareness is basic for human cognition. It is

the stage that connects our mental and perceptual activities to an authentic and individual self. Unlike self-cognition, self-awareness is a state where the self grasps itself with or without having cognitive or perceptual content. With that in mind, let us now shift our attention from the distinction between these two states of self-knowledge to examine how they relate to each other. After all they belong to one rational soul or an individual self.

The Link Between Self-Cognition and Self-Awareness

In his writings, Avicenna identifies two epistemic moments in which these two states of self-knowledge are linked, namely the moments of reflexive attention (*tanbih*), and awareness of awareness *(al-shu'ūr bi-al-shu'ūr*).

With respect to the first moment, Avicenna is perhaps the first to demonstrate the inextricable relation between attention and self-awareness. In *al-Taʿliqāt*, Avicenna expresses this relation by stating:

> When we know something we know that in knowing it we are becoming aware of ourselves. For we know that ourselves have become aware of it and thus our awareness of ourselves is prior to it. Otherwise, how do we know that we become aware of something or not except that we become aware of ourselves first. And such a thing is *attention* and not a demonstration, to the self as being aware of itself. [70]

Attention is a state in which one attends to the awareness of oneself without being directly caused by any perceptual input or stimuli. It is an act of consciousness that is directed toward a specific subject, i.e., the self. In addition to the two moments in which one attends to oneself, thinking and perceiving, Avicenna adds the moment of being aware of oneself. Within the act of attention the awareness of the self become salient for one cognitive faculty. In his writings, Avicenna characterizes attention:

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[70] *al-Ta'liqāt*, §71,125.

1. A voluntary instant that follows the realization of one being oblivious to the existence of oneself (this will be explained further below). He writes "when one is oblivious to awareness of the self, then he would attend to it, and in doing so he would not be aware of himself twice."[71]Attention as a mechanism of consciousness aims toward making the self know when one's cognitive faculty becomes fully occupied with perceptible awareness. In attending the self one would not become aware of the self twice, for attention is not a realization of the existence of the self itself, but rather it is an act that affirms the self being aware of itself.
2. A sound and indubitable "return to yourself . . . where you draw attention to yourself undoubtedly and soundly."[72] This may be attributed to the fact the object and the content of this type of attention is incorrigible. For one would not be misidentified with its object provided that the object itself participates in the act of attention, and attention does not invoke by perceptual input, stimuli, or any external factor.

With that in mind, and provided that self-awareness is a continuous state, the question that needs to be answered is why one needs to attend to one's self-awareness.

In *al-Nafs*, Avicenna indirectly posits two points concerning this question. First, Avicenna categorically rejects those who define attention as "the returning of the self [to itself], so that it becomes fully aware of itself."[73] Avicenna insists that there is no time in which the self is oblivious to its awareness. One may be oblivious to certain actions that one attributes to oneself, but never be oblivious to the self itself. Second, Avicenna establishes that while self-knowledge (*ma'rifat al-nafs*) is an intimate knowledge of

[71] *al-Ta'liqāt*, §55, 119.
[72] *al-Ishārāt,* II, 343-344.
[73] *al-Nafs*, 251.

oneself, one may lose his/her attention to this kind of knowledge as result of having a weakness within the understanding, and thus one needs to regain this attention indirectly, i.e., through a perceptual object.[74] By "a weakness within the understanding," Avicenna means that one is not conscious enough to retain one's attention to oneself. This may be due to the fact that one is fully occupied with either intelligible or perceptual contents. To make the awareness of the self salient to the mind as an awareness that presupposes the other mental activities, a voluntary instant of attention is needed. In this sense, attention is a moment that brings forth the awareness of the self in relation to the perceptual object. It plays a vital role in bridging between two types of awareness, immediate and cognitive awareness. For Avicenna, cognition without the awareness of the self is impossible. The self needs to be affirmed or present to itself in every aspect of perception. In perceiving a color of a paint or sound of music, one is not only formulating an idea of a color and sound but also formulating an idea of that which sees the color or hears the sound. On the other hand, the attributes of self-awareness as being direct, intrinsic, and self-contained are meaningless without being linked or contrasted to the cognitive awareness. To bridge the lacuna between these two different moments of awareness, Avicenna suggests that attention to the self needs to be drawn, specifically attention that affirms the presence of the self at the moment of cognition.

The second way that bridges between self-awareness and self-cognition is through the moment of the "awareness of awareness." One is not only aware of something but one is aware of being aware of something. In *al-Ta'liqāt,* Avicenna links the process of knowing the self to the awareness of awareness:

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[74] *al-Nafs,* 254.

> The human soul could be oblivious to the awareness of itself, and thus it needs to be alerted to it in the same manner as when it is oblivious to other intrinsic properties. And it cannot attain this awareness by something else except itself, because if that happens, then there must be an "otherness" between it and itself, and that is impossible. Furthermore, if a thing does not know itself, how can an "otherness" make the self know itself? Therefore, it follows that something else cannot make the self know itself. *With regard to the awareness of the awareness [I will say that] this is something grasped by the intellect*.[75]

Thus, Avicenna distinguishes between the concept of awareness of the self and the awareness of awareness by showing that unlike the former, the latter, which equates the self-cognition, is not intrinsic to the existence of the self, rather it is something that is apprehended by the acquisition of the intellect. In addition, and unlike the states of self-awareness "which is actual and continuous," the state of the awareness of awareness is in "potentiality and it takes place from time to another" [76]

We can infer from Avicenna's remarks above that there are two stages of awareness: (a) direct awareness of the self that is experiential and a privilege of the first person and (b) awareness of awareness, a form of self-cognition, that can be obtained by acquisition of the intellect without knowing the content of first order awareness—such a content is unavailable. With that in mind, second order awareness is qualified to be an epistemic claim that can be utilized in the process of reasoning or inference. To put it differently, in second order of awareness, the intellect intends first order awareness, and first order awareness becomes the object of the intellect. Thus, second order awareness necessarily precludes the existence of first order awareness.

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[75] *al-Ta'liqāt*, §36, 112. Elsewhere in same text Avicenna argues that "the awareness of awareness is acquired and not natural. 55, 119.
[76] Ibid, §48, 117.

Now an objection that may naturally arise is that to be aware of direct self awareness is itself an awareness, and so would require a further awareness of first order awareness and so on, *ad infinitum*.

In *al-Mubāḥathāt*, Avicenna attempts to offer a way out of the problem of infinite regress by comparing the different orders of awareness to the different stages of perception. In his view, by apprehending a perception of an object, one does not create a new perception, but rather one merely cognizes his perception, and the object of the cognition is no different than the perception itself. Similarly, Avicenna asserts that, one does not create a new self-awareness by reflecting upon an immediate (first order) awareness, but rather one merely cognizes this continuous and primary self-awareness.[77] Hence, the cognition of first order awareness itself is not a new awareness but rather it is merely a cognition of the same awareness. To block the infinite regress sequence of awareness, Avicenna suggests that we ought to consider first order awareness as something no different than the cognition of it. In both orders of awareness, one is aware of the same object, i.e., the persisting self, the difference between them lies in their epistemic values. First order awareness has no epistemic content, it is an awareness which occurs without being about anything that can be recognized by the intellect. While the content of second order awareness is the experience that one acquires from drawing attention to one's direct awareness. In this sense, Avicenna seems to adopt a similar strategy that Aristotle employs in dealing with problem of the infinite that is generated from the notion of "perceiving that we perceive."[78] Both block the infinite assumption by

[77] *al-Mubāḥathāt*, 158.

[78] According to Aristotle "if the sense which perceive sight were different from sight, we must either fall into an infinite regress, or we must somewhere assume a sense which is aware of itself. If so, we ought to do this in the first case" (*De Anima* 425b 15-17).

positing that the first perception (Aristotle) or immediate awareness (Avicenna) to be a perception or an awareness of itself and therefore there is no need to posit a new awareness.

Conclusion

We have seen how Avicenna systematically distinguishes between self-cognition and self-awareness demonstrating that the latter is a primitive and necessary state for all subsequent cognitions, specifically self-cognition. The distinction entails that it is impossible for one to grasp that one has an intellect and that it thinks without presupposing the awareness of the identity and individuation of oneself. By being direct, intrinsic, and continuous, self-awareness affirms the centrality and the unicity of oneself. Unlike Aristotle, Avicenna applies three attributes of self-awareness not only to the divine intellect but also to the human self. Moreover, Avicenna redefines Aristotle's notion of the divine self-thinking by expanding the thinking of the divine intellect of its essence to being the principle of the every existent. Finally, we see how this important distinction between these two states helps us to identify the two epistemic moments that link them with human self-knowledge as a whole.

Averroes on Intentionality and the Human Experience of the Natural World

Yehuda Halper

Like Aristotle's psychology, Averroes' psychology aims to explain how human beings experience the world outside of the soul or the world that is independent of the soul. From the perspective of the soul, this world, the natural world, is divided into two parts: that which can be sensed and that which can be apprehended by the intellect. Certainly there are things that are beyond human comprehension, but whatever can be apprehended must be perceived sensorially or grasped intellectually. Like other Islamic philosophers before him, most notably Avicenna and Avempace, Averroes develops accounts of intentionality to distinguish between apprehended forms, which are present in the soul of the apprehender, and forms that are actually present in the natural world. Much, if not all of human knowledge of the world, it turns out, is attained through intentions. Accordingly, the foundations of science lie, at least to some extent, in intentionality. To understand Averroes' account of Aristotelian science and knowledge of the world, one must first understand Averroes' account of intentionality.

The English word intention is derived from the Latin *intentio*, which medieval translators of Arabic used to translate the Arabic *maʿnā* (معنى). While *intentio* was also used to translate a number of other Arabic terms,[1] here I shall use the term exclusively for *maʿnā* in an effort to elucidate some aspects of what Averroes means by this term. *Maʿnā* is one of the most complicated and multifaceted Arabic philosophic terms and it is not always clear how to translate it, or even whether a single English term could suffice to render it unambiguously. Arabic

[1] Especially قصد, مقصود and even معقول. See Kwame Gyekye, "The Terms 'Prima Intentio' and 'Secunda Intentio' in Arabic Logic*," Speculum*, 46 (1971), pp. 32-38;

translators of Aristotle used *maʿnā* to translate such conceptually broad terms as πρᾶγμα[2], λόγος, and σημαίνει[3] as well as other terms expressing the meaning of things or of words.[4] In these cases, the term seems primarily to express things and their meanings. By Averroes' time, the term had been greatly influenced by the *mutakallimūn*, who used it to refer *inter alia* to attributes (broadly understood), cause, and thing,[5] as well as by Avicenna and Ibn Bājja, who incorporated the term into their accounts of psychology.[6]

Given the complexity of its various meanings, it seems best to consider Averroes' use of the term independently and use Averroes' own language to discover how he understands the term in his psychological works and how he locates the term in Aristotelian psychology. Yet Averroes has three commentaries on the centerpiece of Aristotelian psychology, Aristotle's *De Anima* and develops his account of intention differently in each of them. Here I shall examine two of those accounts of intentionality and knowledge found in Averroes' *Short* and *Middle Commentaries* on the *De Anima*. The *Long Commentary* account, which is Averroes' Final Answer as it were, deserves a separate study.

In both the *Short* and *Middle Commentaries* on the *De Anima*, Averroes introduces intention in his account of apprehension (ادراك). Although it is a central component of Averroes' commentaries on the *De Anima*, apprehension is not actually found in Aristotle's *De Anima*. It

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[2] E.g., in Isḥāq ibn Ḥunayn's translation of the *De Interpretatione*: I. Pollak, *Die Hermeneutik des Aristoteles in der arabischen Übersetzung*, Abhandlungen für die Kunde des Morgenlandes 13 (Leipzig, 1913), Arabic text pp. 1-34 (available online at http://folk.uio.no/amundbjo/grar/interpretatio/arab.php). Another edition, generally considered less reliable can be is ʿAbd al-Raḥmān Badawī, *Manṭiq Arisṭū*, Vol. I, Cairo 1948. Reprinted (Beirut, Dār al-Qalam: 1980), pp. 97-133.

[3] See *Glossarium Græco-Arabicum: A lexicon of the mediæval Arabic translations from the Greek*. http://telota.bbaw.de/glossga/

[4] E.g., as part of συνώνυμος at *Metaphysics* 993b25.

[5] Cf. Richard Frank, "Al-maʿnà: Some Reflections on the Technical Meanings of the Term in the Kalâm and Its Use in the Physics of Muʿammar." *Journal of the American Oriental Society* 87 (1967): 248-259.

[6] Cf. Dag Hasse, *Avicenna's* De Anima *in the Latin West*. London and Turin: Warburg Institute and Nino Aragno Editore, 2000. Pp. 127-153. See also David Wirmer, "Der Begriff der Intention und seine erkenntnistheoretische Funnktion in den *De-anima-Kommentaren* des Averroes," pp. 44-53. In Matthias Lutz-Bachmann, Alexander Fidora und Pia Antolic eds. *Erkenntnis und Wissenschaft*: *Probleme der Epistemologie in der Philosophie des Mittelalters*. Berlin: Akedemie Verlag GmbH, 2004, pp. 33-67.

appears to have been introduced by the medieval Islamic commentators to treat the connection between sensation and intellection, one of the central problems of the *De Anima*. While Aristotle discusses the two concepts of sensation and intellection independently using different words (e.g., αἴσθησις and αἰσθάνομαι for sensation and νόησις and νοέω for intellection), Averroes, like a number of Islamic Aristotelians before him, often discusses sensation (احساس) and intellection (عقل) under a rubric of the more encompassing concept of apprehension (ادراك). The use of apprehension for both of these concepts assumes a kind of connection between them. The connection between them turns out to involve intention, معنى, in that apprehension is apprehension of intentions or of intentions of things. Let us now turn to more detailed examinations of apprehension and intention in the *Short* and *Middle Commentaries* on the *De Anima*.

I. The *Short Commentary* on the *De Anima*

In the *Short Commentary* on the *De Anima*,[7] Averroes repeatedly explains sensory apprehension as the reception of the intentions of individual physical things that exist outside of the soul, which come into the soul stripped, in some sense, of their material, their *hyle*. Thus, e.g., seeing is "that power whose function it is to receive the intentions of the colors stripped from their material inasmuch as these are individual intentions."[8] Similarly, hearing apprehends

[7] References to the *Short Commentary* on the *De Anima* (*SC*) are to Averroes, *Epitome de Anima*, Salvator Gomez Nogales ed. Madrid: Instituto Hispano-Arabe de Cultura, 1985. Occasionally, I have corrected this text with the text of Averroes, *Talkhīṣ kitāb an-nafs*, Aḥmad Fuʾād Al-Ahwānī ed., *Islamic Philosophy* 59, 1999.
[8] *SC*, p. 43.

the intentions of sounds,[9] smell apprehends the intention of aromas,[10] taste the intention of flavors,[11] and touch the intention of what is touched.[12]

Averroes' explanation of sensorially apprehended intention as individual intention stripped of *hyle* implies that intention is a kind of form. This apparently echoes Aristotle's statement opening *De Anima* B 12, "In general concerning all sensation, it is necessary to grasp that sensation is that which is receptive of sensed forms without their *hyle*."[13] Yet compelling as Aristotle's statement here is, it is by no means clear that forms of perceptible objects *can* be grasped entirely without material. Indeed, the example Aristotle uses to support this statement does not escape materiality: "wax receives [the shape of] the ring without the iron and the gold."[14] While wax can take on many shapes without the *hyle* of the original shape, the shape it takes on is still a *hylic* shape; it still retains a kind of materiality and is never completely immaterial.

For Averroes, the materiality of sensorially apprehended intention lies in the individual character of that intention: the senses apprehend individual things. And individual things, i.e., particular things, are necessarily material. Each sensorially apprehended intention is not, then, completely without *hyle*, "rather it exists as something having an individual relation (نسبة) to the *hyle* through which an individual intention occurs."[15] Intention, or at least sensorially apprehended intention, is a kind of form with a relation (نسبة) to *hyle*. Sensorially apprehended intention thus appears to have two components: *form* and a *relation* to matter.

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[9] *SC*, p. 49: hearing is "that power whose function it is to be perfected through the intentions of impressions (الآثار) generated in the air … which are called sounds."
[10] *SC*, p. 53: smell is "that power whose function it is to receive the intentions of smelled things."
[11] *SC*, p. 56: taste is that "by means of which one apprehends the intention of flavors."
[12] *SC*, p. 61: touch is "that power whose function it is to be perfected through the intentions of touched things."
[13] 424a17-19. Translation my own.
[14] 424a19-20.
[15] *SC*, p. 39.

Later in the *Short Commentary* Averroes implies that sensorially apprehended intention is necessarily *hylic*, i.e., not truly formal:

> Apprehended intentions are of two kinds: universal and individual. These two intentions are entirely distinct. This is because the universal is the apprehension of the general intention stripped of its *hyle* and individual apprehension is the apprehension of intention in *hyle*. … Sense and imagination, indeed, apprehend the intentions in *hyle*, but they do not receive them *hylically* in accordance with what we mentioned earlier. Thus we do not consider ourselves to imagine color without magnitude and shape, especially when we perceive it. In general, we do not consider that we imagine sensibles removed from their *hyle*. Indeed, we perceive them in *hyle*, and this is how they are individual. But apprehension of universal intention and quiddity is different from this, since we strip it entirely from its *hyle*.[16]

Here Averroes describes sensorially perceived intentions as being actually *in* the *hyle*. What was earlier described as a relation to *hyle* is now described as *hyle* itself, at least when compared to universal intentions. Here it is not perceived intentions that are stripped of their *hyle*, but universal intentions. *Hyle* is apparently inescapable in sensation and imagination. Sensed things, such as colors, cannot be perceived without those things, such as magnitude and shape, that accompany their material manifestation. This is similarly true of imagination, at least imagination of sensorially perceived objects, which, Averroes tells us, can occur in the absence of those objects. Since the things that are sensed are only sensed with their material concomitants, they are still in a sense *in matter* and cannot be completely removed from *hyle*, even in the imagination:

Objects of intellectual apprehension, however, *are* entirely removed from their *hyle*. For in the case of intellection, the apprehension is the apprehended and thus it is said that the intellect is essentially that which is intellected. The cause for this is that whenever the intellect strips the forms of things that are intellected from their *hyle* and receives them without *hyle*, it happens to be intellecting itself. However,this is not so in the case of sense. For it is not possible for it to sense itself with the result that the sense is the thing sensed, since its apprehension is of the sensed intention, indeed, in so far as it is received in *hyle*. Accordingly, the abstracted intention occurs in the power of sensation as something distinct in existence from its existence in the thing sensed.[17]

[16] *SC*, p. 93.
[17] *SC*, p. 112-3.

Intention is necessary for the apprehension of sensed things precisely because sense and the thing sensed are not the same. Unlike some of the pre-Socratics who thought that sensing bodies meant having those bodies be somehow present in the soul, Averroes sees intention as in some sense mediating between the things in the outside world and the soul's sensory powers. According to Averroes, "some of the forms of the sensed things remain in the sense after their separation from it as affections that are like (شبيهة) the *hylic* forms."[18] The likeness of such affections to *hylic* forms is explicitly said by Averroes to be equivalent to the relation (نسبة) of an individual intention to an individual object in the natural world outside of the soul. Intention's relation to matter then is based on the potential of intention's form to be affected by and thereby become like an individual material object.

Ideally, the intellect works without the mediation of intention. Intellectual subjects and objects form a continuity (اتصال), even a unity (اتحاد), whereby the intellect (عقل), the intellectual subject (عاقل) and the intellectual object (معقول) are one. Yet it is not clear to what extent this understanding of intellect extends beyond the one, universal active intellect. This active intellect is removed from *hyle* in every way and consequently is in no way connected to any kind of individuality, since individuality necessarily implies materiality. Indeed its nature is completely independent of any individual person and it remains unaffected "whether we intellect it or not."[19]

The *Short Commentary* argues that we *can*, *potentially* intellect the active intellect, even while this intellect is free from all potentiality. To make this leap, Averroes adopts what Alexander of Aphrodisias calls the "acquired intellect": an intellect that is somehow added to an individual person's intellect, which is necessarily somewhat material, to make the latter intellect

[18] *SC*, pp. 113-114. Al-Ahwānī, p. 78.
[19] *SC*, p. 127.

continuous with the former.[20] When we intellect, according to Averroes in the *Short Commentary*, we acquire this continuity, often called the "acquired intellect," and somehow link in to active intellect, linking in to the intellectual unity and intellecting in a way that is completely abstract from all *hyle*.

Averroes makes no mention of intention in connection with the active intellect. This is probably because the active intellect cannot have intention, in the sense in which Averroes has been using the term معنى. The complete lack of *hyle* in the active intellect means that the active intellect contains no intentions. For if intention has some kind of relation (نسبة) or likeness to *hyle* or things in *hyle*, then it cannot be present in pure intellect, which does not have any relation or likeness to *hyle*. Thus, while intention is associated with the lower functions of the soul, such as sensation and imagination, it plays no part in the highest activity of the soul, the active intellect.

However, the active intellect and the acquisition of continuity with it occupy a very minor place in the *Short Commentary*.[21] Much more prominence and space is given to the discussion of the so-called *hylic* intellect, an intellect that *does* somehow involve intention.

The *Short Commentary* is built around a hierarchical structure of powers of the soul, according to which each lower power of the soul is a disposition (استعداد) for a higher power of the soul. Thus the nutritive power of the soul provides a disposition for the power of sensation and the power of sensation provides a disposition for the imagination. The nutritive power of the animal soul ensures that the soul has the conditions whereby it can sense and the sensory capabilities provide the conditions whereby animals can imagine, i.e., consider the intentions of

[20] Alexander, *De Anima*. In *Scripta minora* 2.1, ed. I. Bruns (Berlin 1887), p. 82. Herbert Davidson notes that the prominence given to the acquired intellect in the Arabic translation of Alexander's *De Anima* was likely far greater than Alexander intended. Cf. Herbert Davidson, Alfarabi, Avicenna and Averroes on Intellect. New York and Oxford: Oxford University Press, 1992. Pp. 11-12

[21] *SC*, pp. 126-8.

sensed things in their absence.[22] Of course, not everything with a nutritive power can sense – plants are the clearest example here – and not everything with the power of sensation can imagine – Averroes claims that sponges and worms have no imagination.[23] In a sense, the imagination is a kind of disposition for the *hylic* intellect. Averroes refers to "the disposition that is in the imaginative forms for receiving the intelligibles."[24] He calls this disposition "the first *hylic* intellect."[25] Further, Averroes says, "the imaginative intention is the same as the intelligible intention in its essence, thus clearly potential intellect is necessarily something else – I wish I knew what it is."[26]

Averroes highlights his uncertainty here about how the *hylic* intellect is somehow both imaginative and purely intelligible. In fact, Averroes' views of how far the human intellect becomes intelligible is part of his famous revisions to the *Short Commentary*, written some years after the original distribution of the *Short Commentary*, probably even after the distribution of the *Long Commentary*.[27] Initially, Averroes claims that the *hylic* intellect is itself a disposition for the active intellect, which is completely attainable through the complete removal of all *hyle*. Later he apparently doubted that all individuality could be removed, claiming that the individual self cannot fully transcend his or her individuality. Consequently, Averroes holds our knowledge of separate intellectual forms only comes about through relation (المناسبة) and comparison

[22] *SC,* pp. 82.
[23] *SC*, pp. 83.
[24] *SC*, p. 124.
[25] Gomez Nogalez's edition here has: الفعل الهيولاني الاول. Richard Taylor tells me that this probably a typographical error and that the text should read العقل الهيولاني الاول, as Al-Ahwānī's edition has (p. 86). If Gomez Nogalez's reading is, in fact, correct, it emphasizes the paradoxical condition of the *hylic* intellect – both *hylic* and active, both form and material.
[26] *SC*, pp. 124. Cf. p. 101.
[27] The purpose of Averroes' revisions to the *SC* remains a difficult question. Herbert Davidson has suggested the most comprehensive explanation of the revisions in *Alfarabi, Avicenna and Averroes,* pp. 265-272. However, there is no critical edition of the *SC* that shows all the revisions and it is difficult to say too much about the revisions before such an edition is made. Here I address comments made as part of Averroes' revisions to the *SC* found on pages 90-95 of Al-Ahwānī's edition, but absent in Gomez Nogalez's edition.

(والمقايسة) with what he calls *hylic* intelligibles. Averroes further associates these *hylic* intelligibles with intention (معنى).[28]

According to the *Short Commentary*, then, human knowledge of the natural world is entirely dependent on relation and comparison through intention. Further, even the act of stripping away matter to understand universals is itself done only through relation and comparison. Accordingly, scientific knowledge comes about through apprehending intentions, combining them and deducing things from them to discover the world outside of the soul.[29] The resulting knowledge then is intentions which are never entirely removed from materiality, i.e., from particularity. While they are more universal than sensorially apprehended intentions, it is not clear that they ever obtain a true universality. Universality itself appears to be beyond human comprehension, accessible only by relation and comparison between intentions and true intelligibles.

II. *The Middle Commentary* on Aristotle's *De Anima*

The *Middle Commentary* on the *De Anima*[30] develops the notion of the relation between intention and intelligible by explaining it in terms of the unity of apprehender and apprehended. Averroes begins with the unity of sense and what is sensed and then extends that account to the imagination and the intelligible realm. According to the *Middle Commentary*, sense is unlike (غير

[28] Al-Ahwānī, p. 94.

[29] *SC*, p. 96: "Then too the existence of one animal, namely man, is not possible through [sensation and imagination] alone, but through his having a power by which he apprehends intentions stripped of their *hyle,* composes some intentions with others and deduces some intentions from others until he thereby puts together arts which are useful for his existence, whether from necessity or from excellence. It is compulsory that this power, i.e., the rational power, be present in man. But nature was not limited to this alone, i.e., to granting man the principles of intentional thought for acting, but it is clear that it gave him other principles not fundamentally suited for acting, which is to say useful in his sensible existence, not necessarily useful, except for the sake of excellence. These are the principles of the theoretical sciences."

[30] References to Averroes' *Middle Commentary* on Aristotle's *De Anima* (henceforth: *MC*) are to Alfred Ivry's edition (Provo, Utah: Brigham Young University Press, 2002).

شبيه) what is sensed, but becomes like it (تتشبه) by becoming its intention (معنى).[31] Sensibly perceived forms have different ways of being: they are "intentions in the soul and corporeal things outside it."[32] When the organ "receives" the intention of a sensed thing, in some way it becomes the intention of the sensed thing so that "they become one thing, though they are two different things in existence." Averroes follows Aristotle in calling sense a "ratio" or "harmony,"[33] though here the Arabic word for this is نسبة,[34] the same word used for intention's relation to the sensed object in the *Short Commentary*. Further this "ratio" reflects a kind of likeness (شبيهة) between the sensed object and the organ of sensation. Here it seems that Averroes interprets Aristotle's ratio between the sense and the thing sensed as a relation and likeness between the intention of the sensed object and the organ of sensation. The sense organ and the intention of the sensed object become one, but that oneness is a oneness through relation (نسبة).

This kind of oneness, in fact, is what is identified in Averroes' commentaries to *Metaphysics* Γ as *pros hen* and becomes throughout Averroes' *Long Commentary* on the *Metaphysics* a *pros hen* analogy. In terms derived from the *Metaphysics* then, the unity of sense and the intention sensed is an analogical unity.

Regarding intellectual apprehension in the *Middle Commentary*, Averroes tells us, "Aristotle's statement concerning the identity (شيئا واحدا) in every respect of intellect and intelligible obtains fully [only] with respect to separate objects," i.e., with respect to separate intellects, "whereas this identity is incidental, as it were, in our intellect."[35] This is because our

[31] *MC*, p. 64: "The senses are potentially the intentions of the perceived objects, not the objects themselves; and the sense is affected by the perceived object by virtue of being unlike it, becoming the intention of the perceived object (or like the perceived object) by virtue of resembling it" (translation modified).
[32] *MC*, p. 87.
[33] Cf. 426a27-b7. Aristotle's speaks of a λόγος between sense and the thing sensed. This λόγος is usually understood to mean ratio.
[34] *MC*, pp. 97-98.
[35] *MC*, p. 115. Square bracketed word is added by Ivry, but clear from context.

intellect, which is embedded in material, thinks only "objects which are external to itself."[36] A truly intellectual, separate intellect is a one, an intellect intellecting intellect, while man's intellect is not one in the same sense since it apprehends intelligibles that are outside of itself. Thus while a separate intellect need not have any relation to anything outside of it, human intellect is dependent on such a relation.

Nevertheless, man's intellect, man's power of reasoning, is not like sense whose relation to material objects implies that sense "contain[s] a measure of change."[37] Rather, man's power of reasoning "must be completely unaffected; that is, it must be unreceptive to the change that occurs to faculties which are affected by virtue of their commingling with the subject in which they are found."[38] It must be unchanging, but yet it must have some relation to the objects which it intellects. Averroes says:

> Its relation (نسبة) to intelligible objects is like that of the sensory faculty toward sensible objects, except that the faculty which receives sensible objects is mixed, to a degree, with the subject in which it is found, whereas this faculty must be completely unmixed with any material form. For, this faculty, which is called the *hylic* intellect, if it is to think all things – that is, receive the forms of all things – cannot be mixed with any one form; that is, it cannot be mixed with the subject in which it is found, as the other material faculties are.[39]

How the human intellect is to be able to think all forms while at the same time not be mixed with any one form is not entirely clear.

Averroes appeals to Aristotle's famous comparison of intellect to a writing tablet. The human intellect is a disposition (استعداد),[40] i.e., a potential for receiving forms, in the way that the surface of a writing tablet is a disposition for receiving writing. "The disposition for receiving writing which is found in a tablet – that is … the disposition found on the surface of the tablet is

[36] *Ibid.*
[37] *MC*, p. 108.
[38] *Ibid.*
[39] *MC*, p. 109.
[40] *MC*, p. 115, cf. p. 112.

not mixed with the tablet"[41] The human intellect apprehends the universals of the natural world without their material. In fact, Averroes takes this comparison one step further, claiming that it applies to "the situation of the intellect with the intelligible."[42] That is, insofar as the human intellect is a disposition it is not mixed with any intelligibles. It is, as it were, an empty slate. As such it is on a kind of middle ground: it is unmixed with material, but at the same time unmixed with intelligibles.

The question, then, is: how does the human intellect both receive forms corresponding to things that exist in the natural world and actively intellect, that is think about intelligibles? Averroes' answer begins by appealing to an activating intellect (عقلا فعلا) responsible for activating the human intellect and an affected intellect (عقلا منفعلا) that is affected by the forms of objects in the natural world. This is based on Aristotle's description of intellect which can become (γίνεσθαι) all things and intellect which makes (ποιεῖν) all things. Aristotle compares the latter intellect to light which activates the colors so that they can be seen.[43] Averroes elaborates on this as follows:

> As it is light which renders colors actual after their having been potential, and which gives the pupil of the eye the intention through which it can receive colors – namely transparency – so this intellect is that which actualizes intelligibles and brings them forth, and it is that which gives the *hylic* intellect the intention through which it receives intelligibles (that is, something which resembles the transparency of sight).[44]

Averroes' changes to Aristotle's account chiefly concern intention (معنى). Just as light allows the eye to see the intention of colors, the intellect allows the *hylic* intellect to have the intention through which it can receive colors. It is striking that there are two accounts of intellection given here: 1. intellect actualizes intelligibles and brings them forth and 2. intellect gives the *hylic*

[41] *Ibid.*
[42] *Ibid.*
[43] 430a10 ff.
[44] *MC*, p. 116. Translation is modified. For some reason, Ivry did not translate the instances of معنى.

intellect a intention through which it receives intelligibles. The first account does not necessarily have any need for intention or even the *hylic* intellect. It could refer to a separate intellect. The second account can be viewed as a specific case of the first; it, too, describes actualizing intelligibles and bringing them forth. Only, the second account involves the *hylic* intellect, that is the human intellect, and it involves intention. Intention, I have been arguing, always involves some kind of relation and thus, like the *hyle* of the *hylic* intellect implies something outside of the intellect, something that is perhaps not intelligible.

Averroes goes on to tell us that the intentions given by this Agent Intellect to the *hylic* intellect are, in fact, found in the imagination. They are potential intelligibles. Indeed, the intellect "renders them actual intelligibles after their having been intelligible in potentiality."[45] The association of these intentions with the imagination is probably derived from Aristotle's famous statement:

> For the soul that intellects, imaginings are present in the way perceptible things are. … Hence the soul never intellects without an imagining. This is just as the air acts on an eyeball in a certain way and this acts on something else, and so too with hearing. The last thing acted upon is a one with a single mean, although it has being in many ways.[46]

This short, intriguing statement is one of the most commented upon in the Aristotelian corpus. Yet the statement itself is quite vague and we are limited in what we can attribute to Aristotle's views on this subject. The intellect is somehow dependent on imagination. The workings of the imagination, imaginings or *phantasmata* act on the intellect leading to intellection. This is compared to the way that air acts on a sensory organ (an eye or an ear) which acts on "something else," presumably the sense itself, leading, presumably again, to sensation (seeing or hearing). Air acts on the eye or ear as a medium conveying the sensible form from the object in the natural world via the organ of sensation to the sense. Thus imaginings also play the role of a kind of

[45] *MC*, p. 116.
[46] *De Anima*, 431a14-20.

medium for intellection, an activity for which there is no organ. Averroes' explanation of this passage gives imagination an even greater role:

> Images in the soul are related (تتنزل) to the intellect as sensible objects are related to the sense – that is just as sense judges sensibles, so intellect judges images, and, therefore, neither thinking nor judgment is possible without imagination.[47]

Imaginings are not the medium for intellection; they are in a sense the subject of human intellection. That is, human intellection operates on the imagination. Averroes even goes so far as to describe "imaginative intelligibles" (معقولات الخيالات) which are in a relation (نسبة) to the intellect in the way that sensibles are in a relation to sense. In light of my description of intention, I think it is not a stretch to identify these imaginative intelligibles with Averroes' earlier description of the intention, found in the imagination, through which the *hylic* intellect receives the intelligibles. That these imaginative intelligibles bear a relation (نسبة) to the intellect (العقل) strengthens the case for this identification: these intentions are not intelligibles, but have a relation to intellect.

The intellect that actualizes this process is Averroes' famous separate, eternal Agent Intellect (عقل فعال). This intellect is entirely one. "The intelligent and intelligible aspects of this intellect are one thing in essence (شيء واحد بذاته) since it does not think anything external to its essence."[48] As a perfect one, this Agent Intellect does not think anything external to it and consequently does not think the *hylic* intellect, the imaginative intelligibles or any intentions. What kind of relation, then, can obtain between the imaginative intentions and the intellect?

The eternal Agent Intellect is, Averroes tells us, "our final form."[49] It thinks unceasingly, but the objects of its thoughts, the intelligibles, only make it to the *hylic* world through the *hylic* intellect. The terms *hylic* intellect and Agent Intellect imply that the former is the potential of the

[47] *MC*, p. 120.
[48] *MC*, p. 116, translation modified.
[49] *MC*, p. 116.

latter or that the latter is the activity of the former. Averroes calls this connection انضمام, joining or conjoining. The *hylic* and agent intellects join together. The imaginative intentions (المعانى الخيالة) join with the intelligibles. Averroes also refers to this joining as a continuity (اتصال) which renders the intellect and the intention one (واحدا). Just as the sense and the sensed object become one through relation (نسبة) the imaginative intention and the intelligible become one through relation (نسبة). In the latter case, though, the one by relation is also a one by conjoining and a one by continuity.

In the *Metaphysics*, as I have mentioned, Averroes identifies this kind of relation (نسبة) with analogy. This kind of relation is a *pros hen* relation and is thus distinct from the category of relation, in reference to which Averroes uses the term اضاف. Applied here, we can state that apprehension involves a *pros hen* analogy between the apprehender and that which is apprehended. Further, any intention that can be apprehended also involves some kind of analogy between the intention and that which is meant. In a sense, we can describe Averroes' teaching about apprehension as an attempt to explain the analogy between what is in our minds and what exists outside of our minds, be it in the natural world or in the Active Intellect.

III. Conclusion

This account of intention and its relation to the natural world provides a basis for an account of science. The goal of natural science is understanding the natural world. Human access to the natural world begins with intentions that are apprehended through sensation. The apprehension of such intentions is basically automatic and as such these intentions reliably correspond to the outside world. Nevertheless, they are related to *hyle* which is inherently not understandable. Something in sensorially apprehended intention defies comprehension. Yet the imagination also has intentions which are related to the natural world, perhaps by being related to sensorially

apprehended intentions. The goal of natural science appears to be to make those imaginative intentions be imaginative intelligibles, with a relation both to the natural world and to the intellect. Through such a process we use the intellect to tell us about the natural world, thus acquiring a kind of intellectual knowledge about nature.

This account of natural science centers around intention and relation or analogy. Theoretical science that is based on any kind of relation to the natural world must necessarily treat intention; indeed its subject must primarily be intention. It is through relations found in intentions that the human soul can bridge the divide between the natural world and the intellect. The bridge, though, that the human soul forms is one of analogy and relation.

Cecilia Martini Bonadeo

The Arabic tradition of Aristotle's Metaphysics (IXth - Xth centuries)

At the beginning of the Arabic reception of Greek philosophy, Aristotle's *Metaphysics* was translated more than once. Then, the necessity appeared to rethink the acquired knowledge in an autonomous way. The Muslim thinkers felt encouraged to recognize in this new knowledge a consistent theological doctrine compatible with Koranic revelation. A substantial contribution to this process was represented by the fact that the translation of Aristotle's *Metaphysics* was accompanied by the translation of other post-Aristotelian Greek works, especially Neoplatonic, which promoted in the Arabic-speaking readers the belief in the substantial unity of Greek cosmology, metaphysics, theology and psychology. For this reason, the text of Aristotle's *Metaphysics* was assimilated selectively: they favored those books whose content was explicitly aitiological and theological.

This reading was inaugurated by al-Kindī (d. 865 ca). In his *On First Philosophy* (*Fī l-Falsafa al-ūlā*) al-Kindī makes use of the *Metaphysics* in a selective way, aiming at expounding an ontology (as we should say today) compatible with the Koranic *tawḥīd*. Books *Alpha Elatton*, *Epsilon* and *Lambda* count as the pivot of this selective reception. In addition, the Neoplatonic One appears as identical with the Immobile Mover, thanks to an analysis of the meanings of "one" in Aristotle's Book *Delta* of the *Metaphysics*, which allows such an identification. Once taken for granted the Aristotelian rule that forbids to go back endlessly in the causal series, al-Kindī reaches the First Cause as the absolute beginning, i.e., the starting point of the eternal movement of the heavens, the absolute One. The Neoplatonic transcendence to every predication is nothing if not a consequence of this; al-Kindī does not renounce to express this topic in the Mu'tazilite terms of transcendence of God to all the attributes we can predicate about Him.

Later on, al-Fārābī intended to frame the Aristotelian philosophy in a new system of sciences, in order to integrate the scientific Greek heritage and the autochthonous sciences of Islamic civilization. It was then necessary to clearly grasp the purpose and object of Aristotle's *Metaphysics*: in al-Fārābī's eyes, the latter doesn't equal the science of *tawḥīd*, i.e. apologetical Islamic theology. According to al-Fārābī in his *On the purposes of Aristotle's Metaphysics*, the metaphysical science

has being *qua* being as its object, and for this reason it also deals with the principle of being, i. e., that principle which is designated by us as God. Therefore, al-Fārābī wants to clarify the relationship between the metaphysical science as rational theology on one side, and theodicy and *kalām* on the other. The metaphysical science is, in al-Fārābī's view, the universal science: at one and the same time first philosophy, ontology, and theology. This notion of metaphysics will count as the starting point of Avicenna. In this paper I will try to outline this development in the Arabic tradition of Aristotle's *Metaphysics*[1].

Thanks to one of Averroes' last works, the so-called Long Commentary to the *Metaphysics* (*Tafsīr Mā ba'd aṭ-ṭabī'a*)[2], we have access to the main testimony of the direct tradition of the *Metaphysics* in the Arabic world. The lemmas of Averroes' commentary quote almost literally eleven of the fourteen books of Aristotle's work. Only *K*, *M* and *N* are missing. The versions preserved are those of several translators, active at different stages of the Greek-Arabic translation movement. The Arabic translations of Aristotle's *Metaphysics* used by Averroes are divided into lemmas of variable length, each of them accompanied by a paraphrase-commentary. In his explanations Averroes occasionally also quotes alternative translations. The following table shows the comprehensive plan of the different translations used by Averroes either in the lemmas or in the commentary, or also transcribed in the margins of Leiden manuscript[3].

Books	Translations of lemmas	Passages quoted in the commentary	Translations copied in the margins
α	Isḥāq (untill 995a17) Usṭāṯ (?;995a17-20)	Usṭāṯ	Usṭāṯ (until 995a17)
A	Naẓīf (from 987a6)		
B	Usṭāṯ		
Γ	Usṭāṯ	Isḥāq (?)	
Δ	Usṭāṯ		
E	Usṭāṯ		

[1] To this topic is devoted the first chapter of my *'Abd al-Laṭīf al-Baġdādī On Metaphysics*, forthcoming.

[2] Bouyges (1990[3]). The text is surviving in ms Leiden, Universiteitsbibliotheek, *Or*. 2074 (*cod. arab*. 1692), described by M. J. de Goeje, *Catalogus Codicum Orientalium Bibliothecae Academiae Lugduno-Batavae*, V. 324-325, n. 2821 and by Bouyges (1990[3]), *Notice* XXVI-LII.

[3] Cf. Bouyges (1990[3]), *Notice* CXXVII-CXXXII; Peters (1968), 49-52, see the review by Daiber (1970), 538-547; Genequand (1984), 5-11; Martin (1989), 528-534; Martini Bonadeo (2003), 259-264; Bertolacci (2005), 241-275; Bertolacci (2006), 5-35.

Z	Usṭāṯ		
H	Usṭāṯ		
Θ	Usṭāṯ	Isḥāq (?)	
I	Usṭāṯ	Isḥāq (?)	
Λ	Mattā (until 1072b16) Usṭāṯ(1072b16-1073a13) Mattā (from 1073a14)	Usṭāṯ Yaḥyā ibn ʻAdī Šamli or Isḥāq (?)	Usṭāṯ (until 1072b16) Yaḥyā ibn ʻAdī (1070a5-7)

The table above shows that the first two books of the Aristotelian treatise appear in reverse order with respect to the Greek tradition: *α* precedes *A*. Two different translations of *α* are extant: the Leiden manuscript preserves the translation made by Isḥāq ibn Ḥunayn (d. 910) in the lemmas of Averroes' commentary[4], but it also contains another translation of Aristotle's text, copied in the margins and ascribed to a certain Usṭāṯ (9th century)[5]. It is a very literal version, elaborated directly from the Greek[6]. Comparing the two versions, I have reached the conclusion that these two Arabic versions of *α* at times follow variant readings of the Greek text, which implies that they are reciprocally independent[7].

Book *Alpha Meizon* begins with 987a6: the first four chapters and part of the fifth are lacking. As for *Alpha Meizon*, Averroes uses the translation made by Naẓīf (10th c.), a scholar who is not mentioned in the *Fihrist* of Ibn al-Nadīm among the translators of the *Metaphysics*, but appears in another section as a physician and mathematician[8]. No other versions of this book are recorded: this fact might mean that

[4] Isḥāq ibn Ḥunayn's translation of *α* is also extant independently of Averroes' commentary. We have two different attestations. First Isḥāq's translation of *α* is the version quoted and commented upon by Yaḥyā ibn ʻAdī in his commentary on *Metaphysics Alpha Elatton*: Miškāt (1967); Badawī (1973), 168-203; Khalīfāt (1988), 220-262. In Martini Bonadeo (2003a), 69-96; Martini Bonadeo (2007), 7-20, I argue that Isḥāq's translation of *α* is preserved in a more complete way in Yaḥyā's commentary than in Averroes' Long Commentary. I also point out that Yaḥyā had at his disposal Arabic translation(s) of *α* other than that by Isḥāq. Second it is probably the version used by Avicenna in his paraphrase of this book within the *Ilāhiyyāt*: Bertolacci (2005), 252, note 29, and Bertolacci (2006), 15, 312-316. Avicenna's use of Isḥāq ibn Ḥunayn's translation of *α* is also confirmed by the fact that an abridged version of the translation prepared by Isḥāq ibn Ḥunayn of *α* survived in ms. Dār al-kutub *Ḥikma* 6: Badawī (1947), 48-49. This manuscript contains texts which originally belong to Avicenna's library. Gutas (1987), 7-17, maintains that this abridged version contains a number of readings better than those in the Leiden Averroes manuscript.

[5] On Usṭāṯ see Nasrallah (1976), 319-353.

[6] Endress (1987), 7-23.

[7] It is commonly assumed that the translation of Isḥāq is simply a revision of the more ancient translation made by Usṭāṯ: cf Walzer (1958), 217-231; Mattock (1987), 73-102; Biesterfeldt (1995), 137- 192. In Martini Bonadeo (2002), 75-112, I try to argue, on the contrary, that the two translations are reciprocally independent.

[8] Cf. Ibn al-Nadīm, *Kitāb al-fihrist*, I. 266.2 Flügel-Roediger-Müller; Nasrallah (1974), 303-312; Kraemer (1986), 132-134. We find the name Naẓīf ibn Ayman' in the margin of f. 7v (at the beginning of book *A*) in the ms Leiden, Universiteitsbibliotheek, *Or*. 2074 (*cod. arab*. 1692). Besides in f.1r there

book *A* was lost. Alternatively, one can think that its absence from the translation made for al-Kindī by Usṭāṯ (which is constantly in use in Averroes' commentary for the rest of the *Metaphysics*) depends upon doctrinal reasons. This is the question I raised some years ago[9], coming to the following conclusions. 1. Al-Kindī had at his disposal book *A*, because he made use of some of the doctrines of this book in his *al-Falsafa al-Ūlā*. True, he does not quote the passages as accurately as he does for book *α*, but this does not elicit the conclusion that he did not have the book, given that the context in which he makes use of it is that of a reworking. 2. Hence, book *A* was known, and one is wondering why it did not enjoy enough circulation to ensure its survival in the corpus produced within Kindī's circle. A possible reason is that the circle of scholars gathered around al-Kindī espoused the idea of the doctrinal unity of Greek thought, and that Aristotle's open criticism of Plato in Book *A* did not fit this frame. It is nowadays agreed, thanks especially to Endress (1973 and 1997) and Zimmermann (1986), that they selected some metaphysical works with the aim of showing the coherence between Greek metaphysics and the *tawḥīd*. This criterion was clearly incompatible with the dialectic competition between Pre-Socratic and Platonic ontology on one hand, and Aristotelian ontology on the other, which is the main focus of book *A* 3[10]. After al-Kindī, there is further confirmation that book *A* was known.

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is an annotation of three lines which ascribes to the same translator not only the version of book *A*, but also that of book thirteen *–N* – : cf. Bouyges (1990[3]), *Notice* LVI, LXI e CXXII-CXXIII). Naẓīf ibn Yumn (Ayman) ar-Rūmī, the Melchite, was physician and translator of treatises of medicine and, as we read in the *Fihrist* (I.266 Flügel-Roediger-Müller), of the tenth chapter of Euclid's *Elements*. Ibn Abī Uṣaybi'a, *'Uyūn al-anbā' Fī tabaqāt al-aṭibbā'*, I.238 Müller, states that Naẓīf was an expert in languages and translated directly from Greek into Arabic at a time when most translators had to work from Syriac. Thus he may have been able to translate directly from Greek book *A* without any Syriac intermediary. As I have observed in Martini Bonadeo (2001), 173-206 and in particular 184 note 44, Naẓīf's translation presents some misunderstandings of the Greek text, due, it seems to me, to his inability to recognise structures and particles proper to the Greek language.

[9] Martini Bonadeo (2002), 80-97.

[10] Bertolacci (2005), 247 and note 16. According to the same scholar, i. it is safer to assume that Usṭāṯ's translation was not complete; ii. it originally encompassed only books *α-M* (with the exclusion of *A* and *N*); iii. together with the absence of books *A* and *N*, the presence of book *M* in Usṭāṯ's translation has to be underscored; iv. "the presence of book *M* in Usṭāṯ's translation… excludes …the possibility of invoking the Platonism of Kindī's circle… in order to explain the fact that this translation did not include book *A* (this line of interpretation is suggested by Martini, "The Arabic version", pp. 182-183; "La tradizione araba", p. 112 [sic]). Since book *M* (present in Usṭāṯ's translation) is not less anti-Platonic than book *A*, the anti-Platonic character of *A* appears to be unrelated to its absence from Usṭāṯ's translation" (Bertolacci (2006), 11 and note 18). However, the thesis referred to by Bertolacci as mine is not so: rather, I argued that the anti-Platonic character of *A* was probably the reason why this book, once translated, did not reach such a wide circulation, which would have ensured its survival in the corpus produced within Kindī's circle: Martini Bonadeo (2001), 182; Martini Bonadeo (2002), 91, 111. It would be useful to discuss the same hypotesis for book *M* – i.e. the fact that the anti-

Passages from it, lacking in Naẓīf's translation, are present – in all likelihood in a translation different from Naẓīf's one – in the *Ilāhiyyāt* of Avicenna's *Kitāb al-Šifā'*[11], in the *Kitāb al-Milal wa-al-niḥal* of al- Šahrastānī[12] and in the *Kitāb fī 'ilm mā ba'd al-ṭabī'a* of 'Abd al-Laṭīf al-Baġdādī[13]. In addition, the Latin tradition offers some support to the claim that book *A* existed in Arabic in its entirety [14].

Book *B,* full of gaps, does exist in Usṭāṯ's translation[15]. For this book another translation is mentioned in the *Fihrist* as well as the commentary by Syrianus. This translation is also recorded in the catalogue of Yaḥyā ibn 'Adī's library (d. 974)[16]. Usṭāṯ's translation seems to be in use also for book *Γ*, but Averroes also quotes a different translation, which might have been made by Isḥāq[17]. The two subsequent books, *Δ* and *E*, are preserved in Usṭāṯ's version and there is no mention of other translations. Usṭāṯ translated *Z*, which is used by Averroes in the lemmas, but the latter also quotes the epitome of Nicolaus Damascenus in his commentary[18]. Concerning *H*, Averroes uses only Usṭāṯ's version. For *Θ* and *I,* he quoted Usṭāṯ's translation in the lemmas, but in the commentary he makes use of another translation, commonly ascribed to Isḥāq.

Concerning book *K*, neither the translation nor Averroes's commentary are extant. Nevertheless, Averroes provides a description of its contents in the introduction to his commentary on *Λ,* designating this book with the letter *Yā'*. He states that he has not found book *Kāf* in the order of letters and that this book has not come down to him[19]. M. Bouyges considered the above-mentioned statement on *K* as indicating that Averroes did not know book *K*[20]. According to C. Genequand, there is not sufficient evidence to decide whether book K had been translated into Arabic or

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Platonic character of *M* was probably the reason why this book, once translated, did not reach such a wide circulation –. Book *M* was translated by Usṭāṯ, but it also lacked circulation in Kindī's circle.

[11] Bertolacci (1999), 205-231; Bertolacci (2005), 260-263; Bertolacci (2006), 22-24.

[12] Bertolacci (2005), 263-268; Bertolacci (2006), 24-29.

[13] Neuwirth (1977-78), 97-100; Martini Bonadeo (2002), 93-97.

[14] Martini Bonadeo (2001).

[15] Cf. Bauloye (2002).

[16] Endress (1977), 7. Bertolacci (2005), 247-248; and (2006), 11, proves that in the *Ilāhiyyāt* Avicenna used Isḥāq's version of book *Beta*.

[17] Bertolacci (2004). Bertolacci (2005), 247-248; and (2006), 11, tries to establish the number of the books translated by Isḥāq by means of the extant translations and the indirect tradition. The extant translations encompass books *Alpha Elatton*, *Gamma*, *Theta*, *Iota* and probably *Lambda*. The indirect tradition (i. e. Avicenna's *Ilāhiyyāt*) allows us to extend the range of books to books *Beta*, *Gamma* and *Delta*.

[18] Bauloye (1996), 281-289; Bauloye (1997), 53-73.

[19] Bouyges (1990[3]), 1404, 1-11.

[20] Bouyges (1990[3]), *Notice* CLI.

not, but in view of the fact that neither *Kāf* nor its contents are mentioned in another summary placed at the beginning of book *Z*, it is more likely that *K* was never translated, or at any rate did not figure in any of the versions used by Averroes[21]. A. Bertolacci, on the contrary, emphasizes the fact that the passage on *K* in the preface to *Λ* only attests that Averroes did not know this book as *Kāf* but as *Yā'*. Two conclusions follow: i. Averroes might have been directly acquainted with *K*, which he probably knew in Usṭāṯ's translation, ii. that Averroes did not originally include *K* in the lemmas and in the commentary of his *Tafsīr* is less certain than is portrayed by Bouyges[22]. In my opinion, a decisive argument to solve the confused state of affairs on this book is still lacking[23].

The data regarding book *Λ* are particularly complex: the theological book of the *Metaphysics* par excellence was translated six times in between the IXh and the Xth centuries, a symptom of the extraordinary interest generated by the Aristotelian doctrine of the first principle[24]. In the lemmas of Averroes'commentary book *Λ* appears in two different translations. From line 1069a18 (the beginning of the book) to line 1072b16 Averroes uses the translation from Syriac of Abū Bišr Mattā (d. 940), the translator of Alexander's commentary on *Λ* and probably the author of the translation of Themistius' paraphrase of this book[25]. From line 1072b 16 to the end of *Λ*, Averroes comes back to the translation ascribed to Usṭāṯ[26]. Averroes' commentary of to this book is particularly important because it reflects, and partially conserves, the

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[21] Genequand (1984), 9.

[22] Bertolacci (2005), 250 and note 22; Bertolacci (2006), 18 and note 48.

[23] We must recall that al-Fārābī in the *Fī aġrāḍ mā ba'd al-ṭabī'a* also seems to have knowledge of book *K*, the contents of which are summarized in the treatise designated by al-Fārābī as the tenth.

[24] Cf. Ramón Guerrero (1985), 117-121.

[25] The sources partly disagree about the Arabic translation of Themistius' paraphrase of book *Lambda*. In the *Fihrist*, (cf. Ibn al-Nadīm, *Kitāb al-fihrist*, 251.25-30 Flügel-Roediger-Müller; 312.11-20 Tağāddud) Ibn al-Nadīm says that Abū Bišr Mattā ibn Yūnus translated book *Lam* with Themistius' paraphrase, but in the Hebrew translation of Samuel ibn Tibbon at our disposal [cf. Themistii *In Aristotelis Metaphysicorum librum L paraphrasis hebraice et latine*, CAG V.5, v; cf. Frank (1958-9), 215, note 2; Peters (1968), 52], and in manuscript Damascus, *Ẓāhiriyya* 4871, which preserves the beginning of the complete Arabic version, it is maintained that Isḥāq translated it and Ṯābit corrected it. Themistius' paraphrase has come down to us in two different redactions: in a complete translation and in a paraphrase. The beginning of the complete version, preserved in the above-mentioned manuscript, was edited by Badawī (1947), 329-333. The abridged version, probably the one translated by Abū Bišr Mattā ibn Yūnus, is preserved in ms. Dār al-Kutub *Ḥikma* 6 and has also been edited by Badawī, Badawī (1947), 12-21. Both versions are translated by Brague (1999). The possibility that this situation depends on a double redaction in the Greek tradition cannot be excluded: cf. Pines (1987), Pines (1996), 177. Recently Farhat Taïeb found a long quotation of chapter 4 of Themistius'text in the *Manāhiğ ahl al-sunna* of Ibn Taymiyya; cf. Geoffroy (2003), 420.

[26] Walzer (1958), 417-436; Martini Bonadeo (2004), 213-243. Further information on Usṭāṯ's translations of book *Lambda* can be gathered from Avicenna's commentary on *Lambda* 6-10 in his *Kitāb al-inṣāf*. Cf. Janssens (2003), 401-416.

commentary of Alexander of Aphrodisias, lost in Greek[27]. In addition, Averroes quotes the translation of Yaḥyā ibn ‘Adī and another version which can be ascribed either to Isḥāq or to a certain Šamli (9th century), an almost unknown translator, to whom, as we shall see, the *Fihrist* also ascribes a translation of book *Lambda*[28]. A fifth anonymous paraphrase of *Lambda* 6-10, edited for the first time in 1937 in Egypt and then by Badawī, must be added[29]. The terminological similarity of this paraphrase and the version of Themistius'paraphrase in one of its Arabic redactions should be considered in future studies[30].

As for books *M* and *N,* neither their translations nor Averroes's commentary on them are extant. Nevertheless Averroes seems to be familiar with these books, and provides a description of them in his introduction to *Lambda.* According to an annotation in the margins of f. 1r of the manuscript Leiden, *Universiteitsbibliotheek*, *Or*. 2074 (*cod. arab*. 1692) book *M* was translated by ‘Īsā Ibn-Zur‘a (943-1008), while book *N* was translated by Naẓīf ibn Ayman. From the *Fihrist* of Ibn al-Nadīm further information on the transmission of books *M* and *N* can be gathered[31]. In his entry about the *Book of letters*[32] he explains that the books of the *Metaphysics* are arranged following the Greek letters, beginning from the letter minor *Alif* (*Alpha elatton*) to letter *Mim* and that this letter was translated by Yaḥyā ibn ‘Adī, and by Usṭāṯ for al-Kindī[33].

A salient feature in the reception of the *Metaphysics* in the *falsafa* – already evident in Kindī's *On First Philosophy*[34] – appears if one considers the various Arabic translations: Aristotle's *Metaphysics* aroused so lively an interest in the Arab world, that it was translated again and again. The autonomous rethinking of the newly acquired Greek knowledge and the finding in it of a theological doctrine which was coherent and unitary enough to be harmonious and non-contradictory with Koranic

[27] Cf. Freudenthal (1885).
[28] Cf. Bouyges (1990[3]), *Notice* CXXI.
[29] Abū 'l-‘Alā ‘Afīfī (1937), 89-138, ascribes the paraphrase to Abū Bišr Mattā; Badawī (1947), 48-49, where this translation is ascribed to Isḥāq. For Thillet (1960), 121, the author of the Arabic might have been ‘Abd al-Masīḥ ibn Nā‘ima al-Ḥimṣī. Cf. Gutas (1987), 13b.
[30] Some examples are given in C. Martini Bonadeo (2004), 213-243.
[31] Cf. Ibn al-Nadīm, *Kitāb al-fihrist*, 251.25-30 Flügel; ed. Tağāddud, p. 312.11-20; Peters (1968), 49.
[32] Ibn al-Nadīm, *Kitāb al-fihrist*, ed. Flügel-Roediger-Müller, 251.25-252.1; 312.11-17 Tağāddud.
[33] Cf. Bertolacci, (2005), 245 note 11; Bertolacci (2006), 8 note 8.
[34] Al-Kindī, *Fī l-falsafa al-ūlā*, ed. Abū Rīda (1950); Abū Rīda (1978); new edition of the work in Rashed-Jolivet (1998), 1-101. See also Ivry (1974); Ramón Guerrero-Tornero Poveda (1986), 46-87.

revelation stands out immediately. The Arab interpreters focused on the basic agreement of the *Metaphysics* within the assumptions of the Platonic theology of *Timeus*: causation, i.e. the idea that everything becomes, it becomes for a cause, and the idea that the order of the parts of a whole is the effect of the architectonic idea of an intellect[35]. The foundation of this agreement can be described as follows: the search for the true principles and causes of being, announced at the beginning of the *Metaphysics*, and in *Metaph. E* 1, 1026a 10-23, was accomplished for the Arab readers in book *Lambda*, with its opening summary of the possible alternatives in the search for the principles (*Metaph.*, *Λ* 1, 1069a 26-30), its distinction between the substance subject to becoming and the immutable subject (*Metaph.*, *Λ* 1, 1069a 30-b2), the explanation of its becoming in terms of 'non-being' as 'potentiality' (*Metaph.*, *Λ* 2, 1069b 7-20), and its appeal to the principle of completeness, which excludes the *regressum ad infinitum* (*Metaph.*, *Λ* 3, 1070a 2-11). When, starting from chapter 6 of book *Lambda*, the Arab readers met the argument which argues from the eternity of the circular movement for the existence of an immaterial substance, eternally actual, which is the cause of this movement (*Metaph.*, *Λ* 6, 1071b 3-22), they saw in it the accomplishment of their research into causes and principles. Such a substance, which moves without being moved, could act only as a final cause, i.e. as an intelligible object. The first principle of movement was at the same time depicted as the highest level of the axiological scale – the eternal, supreme object of desire (*Metaph.*, *Λ* 7, 1072a 30-b1). It was also conceived of as the most perfect model of that action which does not imply alteration (*Metaph.*, *Λ* 6, 1072a 10) and does not depend on anything else: thought (*Metaph.*, *Λ* 7, 1072b 14-19). Thus we have to keep in mind the equivalence – introduced into the Arab world by Alexander of Aphrodisias – between the Agent intellect of the third book of Aristotle's *De Anima* and this divine Intellect, which is the cause of all other things, which produces the eternal movement of the heavens with its immobile knowledge of itself. In this perspective, one can understand how easy it was to merge the image of Aristotle's first principle with that of the divine Demiurge of the *Timaeus*, the intellectual principle which produces by remaining immobile, which gives origin to the heavens' rotation, which is excellent and generates what is excellent. Finally, the Arabic paraphrase of *Ennead* VI, 7 [38], where the features of the causality of the intelligible

[35] Cf. *Tim*. 284a4-b1.

principles are applied to the Intellect, transforming it into a principle which produces the cosmos because it coincides with all the rational models of all things, contributed to superimpose the features of the divine intellect of the Platonic and Aristotelian traditions, resolving their disagreement over the existence and nature of ideas, and of course considerably altering both traditions. The intelligible world and its causality were placed in the divine intellect itself, following the Plotinian pattern of the perfect correspondence between the supreme intelligent and the supreme intelligible. This latter, the sole ruler of the universal order, living eternally a blessed life, purely intellective, simple, and immaterial, was to guide the *falāsifa* loyal to the profession of the *tawḥīd*, the divine unity in their reception of Greek metaphysical thought[36].

This unitary reading of the theology of the Greeks, which characterized the reception of Aristotle's *Metaphysics* in the formative period of the *falsafa*, was inaugurated by Abū Yūsuf Ya'qūb ibn Isḥāq al-Kindī (795-865 ca.), who gathered together the circle of translators in which the first complex of Greek philosophical works was translated. To this complex belong not only Aristotle's *Metaphysics* in Usṭāṯ's version, but also a paraphrastic selection from Plotinus'*Enneads* (IV to VI), known as the *Theology of Aristotle*, translated by 'Abd al-Masīḥ ibn Nā'ima al-Ḥimṣī[37] and, as we read in the Prologue, corrected by al-Kindī himself[38]; a selection of propositions from the *Elements of Theology* by Proclus[39], some of which were reworked in a compilation known as *The Book on the Pure Good* (*Kitāb fī maḥḍ al-ẖayr*), possibly made by al-Kindī himself[40] (this compilation, translated in Latin,

[36] D'Ancona (1996), 62-65. Cf. Madkour (1962-63), 21-34; Hein (1985), 306-316; Adamson (2007).
[37] Cf. Bettiolo *et alii* (2003), 72-111; Aouad (1989), 541-590; Zimmermann (1986), 110-239. I quote here only the reference studies. The Arabic version of the *Enneads* (IV-VI) is based on Porphyry's edition of Plotinus' treatises [cf. Schwyzer (1941), 216-236]. The Arabic paraphrase of the *Enneads* (IV-VI) survived in three texts which are homogeneous in terminology, style and doctrine – probably due to a common source. The first, the pseudo-*Theology* of Aristotle, was edited by Dieterici (1882) and again by Badawī (1955). Other fragments of this paraphrase were discovered by Kraus (1940-41), 263-295 and by Rosenthal (1952), 461-492; Rosenthal (1953), 370-400; Rosenthal (1955), 42-65; reprint in Rosenthal (1990). The English translation by G. Lewis is reproduced next to the Greek text in the *editio maior* of Plotinus' *Enneads* (*Plotini Opera*, ed. P. Henry et H. R. Schwyzer 1959).
[38]Badawī (1955), 3.4-9. For Zimmermann (1986), 122 the author of the Prologue is the translator himself, but D'Ancona (1998), 841-855, recognizes al-Kindī himself as the author of the Prologue. Cf. D'Ancona (2001), 78-112; Adamson (2002), 35-40 shares the same thesis.
[39] Cf. Endress (1973); Jolivet (1979), 45-75; Zimmermann (1994), 9-51. Several of Proclus'propositions are transmitted separatedly, attributed to Alexander of Aphrodisias. As for similarities in style and terminology they go back to al-Kindī' s circle: cf. Pines (1955), 195-203: reprint Pines (1986), 278-286; Lewin (1955), 101-108. van Ess (1966), 48-68; Pines (1986), 204-208.
[40] Cf. D'Ancona (1995), 155-194.

circulated in the Medieval West as *Liber de Causis*[41]); the *Introduction to Arithmetic* by the Neopythagorean Nicomachus, translated by Ḥabīb ibn-Bihrīz, the Bishop of Mosul, and corrected by al-Kindī; the paraphrases of some Platonic dialogues: that of the *Timaeus* (lost for us) translated by Yaḥyā ibn al-Biṭrīq, and that of the *Symposium* probably done by a Ṣābi'an scholar; Aristotle's *De Caelo*[42], the *Meteorology*[43] and the zoological works[44] translated by Yaḥyā ibn al-Biṭrīq; finally a compendium of Aristotle's *De Anima*, influenced by the commentary of Ioannes Philoponus and much more by a late sixth-century paraphrase of which Philoponus' commentary was the source (this text was still read by Sophonias in thirteenth to fourteenth-century Byzantium)[45]; some *quaestiones* by Alexander of Aphrodisias and some revisions of his writings[46]; and finally some doxographical works[47].

In the treatise *On the Quantity of Aristotle's Books* al-Kindī gives the following explanation of the purpose of Aristotle's *Metaphysics*:

> "His purpose in his book called *Metaphysics* is an explanation of things that subsist without matter and, though they may exist together with what does have matter, are neither connected with nor united to matter, and the Oneness of God, the great and exalted, and an explanation of His beautiful names, and that He is the complete agent cause of the universe, the God of the universe and its governor through His perfect providence and complete wisdom"[48].

According to this point of view, metaphysics and theology are one ad the same thing. In his *On First Philosophy*, inspired by the above mentioned translations of Greek works, al-Kindī proposes a philosophical speculative theology[49]: an ontology

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[41] Cf. D'Ancona –Taylor (2003), 599-647.
[42] Endress (1966).
[43] Schoonheim (2000).
[44] Brugman–Drossaart Lulofs, (1971). Kruk (1979).
[45] Arnzen (1998), in particular 104.
[46] See the list of the Arabic translations of Alexander of Aphrodisias in Dietrich (1964), and the up-to-date studies in Aouad – Goulet (1989), I.125-139, and in Fazzo (2003), 61-70. On the *quaestiones* and the other texts by Alexander of Aphrodisias re-elaborated in al-Kindī's circle see: Endress (2002), 19-74; Fazzo - Wiesner (1993), 119-153. On the writings of other authors attributed to Alexander within al-Kindī's circle see Hasnawi (1994), 53-109.
[47] Cf. Ullmann (1961); Gutas (1975); Daiber (1980); Rudolph (1989); De Smet (1998); Overwien (2005). See also D'Ancona (2005), 305-337.
[48] Al-Kindī, *Fī kammiyyat kutub Arisṭūṭālīs wa-mā yuḥtāǧu ilayhi fī taḥṣīl al-falsafa,* I.384 Abū Rīda (1950); translation in Adamson (2007), 32; cf. Martini Bonadeo (2010), 194-97.
[49] Adamson (2007), 22-25. For al-Kindī the philosophy of the Greeks is a "collective enterprise" (p. 22) aiming at reaching the true nature of things, moving then to the True First Cause; the same holds true

compatible with the creed of those who, like him, agree with the *tawḥīd* of the Koranic religion, i.e. of those who believe in a God who is at the same time the first cause and the first intellect, who has created the physical universe out of nothing and is provident.

In the following two passages al-Kindī sets out the most peculiar aspects of his reception of the *Metaphysics* and of his parallel construction of the first unitary and original philosophical project in the *falsafa*. In his understanding of what is first philosophy (i.), and in his re-interpretation of the First Mover of book *Lambda* (ii.), it is possible to detect Kindī's effort in attempting to read Aristotle's *Metaphysics* in the light of the other sources of the Greek *Metaphysics* – Platonic and Neoplatonic – at his disposal[50].

(i.) On pages 97-98 of Abū Rīda's edition (1950) of *On First Philosophy* al-Kindī maintains that the art of philosophy is the highest in degree and the noblest of the human arts. Its definition is "knowledge of the true nature of things", insofar as is possible for man. The aim of the philosopher is to attain the truth as regards his knowledge, and to act truthfully as regards his action; this activity is not endless for it ceases once the truth is reached. The truth we are seeking cannot be found without finding a cause. The cause of existence and continuance of everything is the True One, because each thing which has being has truth. The True One exists necessarily, and therefore beings exist. The noblest part of philosophy is First Philosophy, because it ends in the knowledge of the First Truth, which is the cause of all truth; hence the philosopher is the man who has understood the noblest among the things to be known, since the knowledge of the cause is better than knowledge of the effect and we have a complete knowledge of an object only when we have obtained a full knowledge of its cause[51]. The knowledge of the first cause has rightly been called First Philosophy,

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for Arabic philosophy. This is the reason why al-Kindī's main treatise *On First Philosophy* can be considered as "an attempt to use philosophy to prove the central truths of Islamic theological dogma" (p. 25): that God is one, and He is creator and provident. Philosophical and prophetic knowledge have access to the same truths, but the former requires study, effort and time, the latter anything but God's will. Al-Kindī's project is that of a speculative theology as that of the Mu'tazilite of his times, but the materials used are different: al-Kindī makes use of "Greek philosophical texts for supporting positions within Muslim theology" (p. 25). Cf. Martini Bonadeo (2010), 194-97.

[50] Ivry (1975), 15-24.

[51] At page 101.3 of *On First Philosophy* in Abū Rīda's edition (1950), al-Kindī, only apparently contradicting himself, explains that the four causes are of four kinds, as the four models of scientific inquiry into existence, the genus, the specific difference and the final cause of an object; the object is fully known only when the full knowledge of its four causes is obtained and the four inquiries into it are successful. Ivry (1974), 121-122, compares this statement with Eustratius'commentary on *An. Post.*

since all the rest of philosophy is contained in its knowledge. The first cause is the first in nobility, the first in genus, the first in rank, the first with respect to the knowledge of what is certain, the first in time as its cause.

Kindī's text follows *Alpha Elatton* so closely– in particular *Alpha Elatton*, 1 and 2 – that it looks like its paraphrase. Doing philosophy means searching for truth: this search is not endless, it ceases only when the philosopher has reached the truth; finally we find the statement that we attain the truth only after having reached the cause[52]. The Kindian text seems to implicitly accept in the description of the proper activity of the philosopher the impossibility of going back *ad infinitum* in the search for causes of *Metaph. α* 2,994a 1-19[53].

The novelty of al-Kindī consists in the characterization of the first cause: his doctrine is of a clear Neoplatonic mould, since the first cause is the True One, the sole origin of all the things. At the same time, it is strongly influenced by the two grounding tenets of Islamic monotheism: the first cause is the True One who, as the cause of existence (*wuǧūd*), makes things exist – by creating – and, as cause of continuance and stability (*ṯabāt*) keeps everything in existence – by being provident[54]. Thus, on the basis of Aristotle's relationship between being and the truth of *Metaph. α* 1,993b 23-994a1, al-Kindī is able to formulate a doctrine which reconciles the religious creed in the First Truth (*al-ḥaqq al-awwal*), one of the names of God in the Koran, with knowledge conceived of by Aristotle as the search for causes. This of course is possible only at the cost of a great shift of meaning in the Aristotelian doctrine on the *primum in genere* of *Metaph. α* 1,993b 23-994a 1.

A further Neoplatonic characterization of the first cause appears in the following passage, in which al-Kindī maintains that knowledge of the first cause is rightly called first philosophy, because the rest of philosophy is contained in the knowledge of it. This statement resounds, as it has been already observed[55], with *Metaph. E* 1,1026a 18-23 and *Metaph. E* 1,1026a 29-32, where Aristotle says that if there is an immobile

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II. 1. 89 b 24 basterà dire (Eustratii *In Analyticorum posteriorum librum secundum commentarium*, CAG XXI. 1, 9.9-35).

[52] Regarding the Aristotelian sources of the passage cf. *Metaph. α* 993b 19-30 and *Metaph. A* 982a 21-b 10. See the analysis of the same passage in D'Ancona (1998), 843-847, where the author focuses on the similarity of this passage with one in the *Theology of Aristotle*. Cf. Ivry (1974), 121-122; cf. Rashed-Jolivet (1998), cit., 8 note 4, 102.

[53] D'Ancona (1998), 845-846, focuses on the influence not only of *Metaph. α* 2,994a 1-19, but also of *Metaph. B* 4,999a 27-28 and of *Metaph. Γ* 4,1006a 8-9.

[54] Cf. *Ibidem*, 847-848.

[55] Cf. *Ibidem*, 852 and note 59.

substance, the science of it must be prior and in this way it must be the first and universal philosophy, because it is first; it will be the duty of this science to examine being *qua* being, i.e. what is and the attributes that, *qua* being, belong to it. Even though Aristotle focuses in these lines on the architectural function of the first philosophy, by no means does he maintain that in the knowledge of the immobile substance is included all other philosophical knowledge. Knowledge of the Immobile Mover does not include knowledge of the other beings and their attributes. On the contrary, for al-Kindī, since the first cause has, following the Neoplatonic model, all things within itself[56], knowledge of the first cause has in itself all the rest of philosophy.

(ii.) We have just seen that in the Kindian philosophy the first cause mixes up some features of Aristotle's doctrine and others derived from the Neoplatonic sources. In the development of al-Kindī's treatise this fact appears even more clearly, because the causality of the Neoplatonic One is connected with that of Aristotle's First Immobile Mover. The Aristotelian conception of a first mover, which is pure intellect and pure act moving the heavens ὡς ἐρώμενον, is in fact modified in order to fit with the cosmic model of the emanation of all beings from and participation to the One[57]. There are passages in *On First Philosophy* from which the co-possibility of the two different theories on the first cause emerges clearly.

On page 114 in Abū Rīda's edition (1950), al-Kindī claims that motion is change and that the Eternal does not move, because it neither changes nor moves from deficiency to perfection. Hence he claims that the perfect object is that which has a fixed state, whereby it excels, while the deficient object is that which has not a fixed state, whereby it may excel. Thus the Eternal cannot be deficient, because it cannot move to a state in which it may excel, since it cannot ever move to something more excellent or more deficient than itself.

This passage in al-Kindī's treatise plays the role of presenting the production of the universe as motion. It also focuses on the ontologically deficient status of the universe as compared with the immobile perfection of its creating principle. It is reminiscent of *Metaph.* Λ 7, 1072a 23-b 8, from which al-Kindī derives both the idea of an eternal principle, cause of movement without being itself moved by something

[56] Cf. *Ibidem*, 848 and note 46.
[57] See D'Ancona (1992), 363-422, also for the analogies between the first principle in al-Kindī and in the *Liber de causis*.

else (*Metaph.* Λ 7, 1072a 25-26), and the proof of its immobility based on the incompatibility between perfection and movement (*Metaph.* Λ 7, 1072b 8).

Later on, on pages 161-162, al-Kindī goes on to say that every multiplicity comes to being through unity: if there were no unity, there would never be a multiplicity. This happens, in al-Kindī's opinion, since every coming to be is an affection, which brings into existence that which did not exist. The emanation of unity from the True One is the coming to be of every sensible object and of that which every sensible object has in itself. The True One makes all of the sensible objects exist when it causes them to be through its own being. Therefore the cause of coming to be is the True One, which does not acquire unity from any other principle, but is essentially one.

The First Principle is described as the True One, which is in its essence that unity which we find in other things only through participation. As unity, it is the condition of being of other things; it causes them to be what they are. The evident reference is to the theses of Plotinus and Proclus, who, through the *Plotiniana Arabica*, played a primary role in the development of al-Kindī's metaphysical thought[58]. In this passage the only predicate attributed to the True One is that of being one through its own essence. Al-Kindī in fact inherits from the Neoplatonic model the theme of the ineffability of the nature of the first principle[59].

Finally on page 162, al-Kindī claims that what is made to be is not eternal; thus, since that which is not eternal is created and comes to be from a cause, that which is made to be is created. The cause of coming to be is the True One, the First, the cause of creation is the True One, the First. It is the cause from which motion begins: al-Kindī uses the expression 'that which sets in motion the beginning of motion', i.e. the agent. The True One, the First, is the cause of the beginning of motion in which coming to be consists and it is the Creator of all that comes to be.

Thus in al-Kindī's interpretation the causality of the First Immobile Mover does not consist only in causing the eternal movement of the heavens: instead, it also

[58] *Ibidem*, 396-404, 413-422. Cf. Endress, (1973), 242-245; D'Ancona (1995).

[59] Cf. al-Kindī, *Fī l-falsafa al-ūlā,* I. 160.6-17 Abū Rīda (1950); Ivry (1974), 112. Al-Kindī remains faithful to the tie of the ineffability of the nature of the First Principle. Only at one point does he seem to contradict himself, when he ascribes to the First Principle a intellectual nature, in so far as it knows: cf. D'Ancona (1992), 421. This is probably due to the fact that the term *al-ḥākim* 'wise' is one of the Koranic attributes of God, which is particularly important not only for the doctrine of creation, but also for the divine justice: Gimaret (1988), 253-278.

determines the coming to be of the universe from non-being. In this doctrine scholars have recognized the influence, in a form not yet identified, of the anti-eternalist arguments of Philoponus[60] on creation[61]. In turn, the modality through which the universe was produced out of non-being was suggested to al-Kindī by the Neoplatonic model of participation to unity. In this way the First Principle is the first cause of an ordered series of causes, whose effect is the universe; at one and the same time, it is the cause which transcends the series of causes and which, in its causing things to be through participation in the unity, does not diminish nor change, but remains the True One, pure, eternal, immobile mover, creator, efficient cause of a creation out of nothing (*ibdā'*), transcending every predication. The True One, as principle of the unity and the being of all things, is the only one True Agent. The other principles, Intellect, Soul and the first heaven, are created by the True Agent and they are the proximate causes for the world of coming to be and passing away. They are called agents only metaphorically: they are not pure act and act only as intermediaries, transmitting a causality which they have received in turn. Hence the sovereignty (*al-rubūbiyya*) of God, the transcendent cause of unity being itself, indicates his causality through intermediate principles[62].

Al-Kindī is able to provide such a description of the causality of the True Agent by joining together two different sets of doctrines[63]. As for the Aristotelian sources, he shares the thesis of the Arabic Alexander in the adaptations produced by

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[60] Philoponus was known in the Arabic world. Some of his commentaries (for example on the *Physics*, and the *De Generatione et Corruptione*) were translated into Arabic. His polemical works also circulated as the *Contra Aristotelem* – cf. Steinschneider (1960), 233; Kraemer (1965), 318-327 – and the *De aeternitate mundi contra Proclum,* the only one in all likelihood known to al-Kindī: Anawati (1956), 21-25; Badawī (1957); Endress (1973), 15-18; Hasnawi (1994), 53-109. Moreover some of Philoponus' theses registered by scholars in the Arabic tradition seem to prove the circulation of another of Philoponus'writing, the *De Contingentia Mundi*, against which al-Fārābī had argued: cf. Davidson (1987); Pines (1972), 350-352, repr. in Pines (1986), 294-352; Mahdi (1967), 233-260; Mahdi (1972), 268-284; Troupeau (1984), 77-88.

[61] Cf. Davidson (1987); D'Ancona (1992), 393-395.

[62] Adamson (2007), 69, states that in *On the true Agent* God as Creator bears a direct causal relationship only with the first creature, the heavens; then, they pass on the causal action of God to everything else. Al-Kindī seems to have in mind the Aristotelian chain of movers till the Unmoved Mover of the *Physics,* as well as the causality through intermediaries of the One in Arabic Plotinus and Proclus. Adamson rightly raises the following problem: how does al-Kindī's description of creation as God's bringing being from not being fit with this model of God's action through intermediary causes? The idea is that for al-Kindī the process of generation and corruption is distinct from the process of granting and removing being: the first is accomplished by the intermediary causes, the second by God alone. "It would seem that God does indeed have an immediate relationship with every created thing. For He gives each thing its being. But on the other hand, He gives only being. Other, intermediary, causes must be invoked to explain the features of each thing that make it the sort of thing that it is" (p. 69).

[63] For the fortune of this model of interpretating still reflected in Averroes see Martini Bonadeo (2006).

his own circle of translators[64], in particular the adaptation of Alexander's *Quaestio* II.19 entitled *On the world and which of its parts have need in their endurance and their perpetuation of the direction of the other parts, and of which of its parts do not have need of the direction of other parts*, reflected also in al-Kindī's *On the Proximate Efficient Cause of Generation and Corruption* and in *The Explanation of the Prostration of the Outermost Body and its Obedience to God* [65]. According to the Arabic Alexander, in fact, (i.) the heavenly bodies and their movement bring about and preserve the existence of all that comes to be, and cause all generation and corruption[66] and (ii.) God, the First Agent, originated, preserves and perfects creation through the mediation (*bi-tawassuṭ*) of the celestial spheres which he created.

As for the Neoplatonic sources, al-Kindī endorses one of the most important doctrines formulated in the *Liber de Causis*. The doctrine of causality through intermediaries has been made famous by proposition 3 of the *Pure Good,* the *Liber de Causis* of the Latin Middle Ages[67]. As is well known, the *Pure Good* was composed in al-Kindī's circle on the basis of the 211 propositions of Proclus' *Elements of Theology* and it presents so many doctrinal and textual analogies with al-Kindī's *On First Philosophy* that one would think that the author of the *Pure Good* was al-Kindī himself[68]. Proposition 3 derives from proposition 201 of Proclus' *Elements of Theology*. We are told that every soul performs three different activities: the divine activity according to which the soul rules nature with the power derived from the First Cause; the intellectual activity, because the soul knows things through the power of the Intellect; and the animate activity, because the soul moves the first body and all natural bodies, since it is the cause of motion and, through motion, life. The soul is able to perform these three activities because it is an image of a higher power: like the

[64] Fazzo-Wiesner (1993), 119, speak of a circular relationship between al-Kindī and Alexander's texts: "While the Kindī-circle's Alexander was closely followed by al-Kindī on certain points, al-Kindī exerted a reciprocal influence on the Arabic Alexander, who was largely a product of his own group of translators".

[65]Van Ess (1966), 153 note 33: *Faṣl fī l-'ālam wa-aiyu aǧzā'ihī taḥtāǧu fī ṯabātihī wa-dawāmihī ilā tadbīri aǧzā'in uḫrā* (ms. İstanbul, Süleymanıye Kütüphanesi, Carullah 1279, fol. 63b,21-64a,13). Cf. Fazzo – Wiesner (1993), 119-153 and in part. 152-153 for the English translation of the text.

[66] See for example al-Kindī, *On the Proximate Efficient Cause of Generation and Corruption* (*Risāla Fī al-ibāna 'an al-'illa al-fā'ila al-qarība li-l-kawn wa-l-fasād*) in Abū Rīda (1950), 226-227.

[67] Cf. D'Ancona- Taylor (2003), 599-647.

[68] D'Ancona (1995), 155-194.

Intellect, the soul derives its causal power from the First Cause, but not directly. Indeed the First Cause created the soul through the intermediacy of the Intellect[69].

It is worth noting that the doctrine of causality through intermediaries presented in this famous proposition of the *Pure Good* was elaborated for the first time in the context of Kindī-circle's paraphrase of Plotinus'*Enneads* (treatise IV 7[2]), i.e. the pseudo-*Theology of Aristotle*; it was then attributed to Plato in the same context and finally it became the prime doctrine (*al-qawl al-awwal*) of the *Theology of Aristotle*[70], as we can read in its Prologue[71].

Hence, once again in Kindī's eyes, the two main models elaborated in the field of Greek metaphysics for the description of the nature and action of the First Principle are reciprocally coherent. He establishes some boundaries within which the later authors of the *falsafa* will move.

A proof of this is well rappresented by Ṯābit ibn Qurra (836-901). Native of Ḥarrān, he settled in Baghdad and was involved in many translations and in the compilation of compendia as an active member of the well-known circle of translators operating in nineth-century Baghdad, around the figure of the famous translator Ḥunayn ibn Isḥāq. Ṯābit ibn Qurra's familiarity with Aristotle's *Metaphysics* and the commentaries devoted to it is clearly indicated by the fact that he is credited with the correction of Isḥāq ibn Ḥunayn's translation of Themistius'paraphrase of book *Lambda* and by the fact that he is the author of a work entitled *On the Concise Exposition of what Aristotle presented in his book Metaphysics of topics that proceed according to the method of demonstration, not persuasion (Fī talḫīṣ mā ata bihī Arisṭūṭālīs fī kitābihī fī mā ba'd al-ṭabī'a mimmā ğara l-amr fīhi 'ala siyāqat al-burhān siwa mā ğara min ḏālika maǧra l-iqnā')*[72].

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[69] Bardenhewer (1882), 63-65. Guagliardo-Hess-Taylor (1996), 19-20: the English translation by R. Taylor is from the Latin text, but in the notes he mentions all the points in which the Arabic text sounds different. Cf. Bettiolo *et alii* (2003), 307-311.

[70] Cf. D'Ancona's remarks in Bettiolo *et alii* (2003), 307-311; D'Ancona (1990), 327-351 [reprinted in D'Ancona (1995), 97-119; D'Ancona (1992), 209-233 [reprinted in D'Ancona (1995), 73-95].

[71] Badawī (1955), 6.7-11; Dieterici (1882), 4.15-17. Lewis'translation in Henry-Schwyzer (1959), 487: "Now our aim in this book is the prime Discourse (*al-qawl al-awwal*) on the Divine Sovereignty (*al-rubūbiyya*), and the explanation of it, and how it is the First Cause, eternity and time being beneath it, and that it is the cause and originator of causes, in a certain way, and how the luminous force steals from it over mind and, through the medium of the mind (*bi tawassuṭi l-'aqli*), over the universal celestial soul, and from mind, through the medium of soul (*bi tawassuṭi l-nafsi*), over nature, and from soul, through the medium of nature (*bi tawassuṭi l-ṭabī'ati*), over the things that come to be and pass away".

[72] Cf. Ibn Abī Uṣaybi'a, *'Uyūn al-anbā' fī ṭabaqāt al-aṭibbā'*, I. 218, 14-15 Müller: *Iḫtiṣār kitāb mā ba'd al-ṭabī'a*. Brockelmann (1943), suppl. I. 384. My information on this text derives from the work

This writing, only recently edited on the basis of two manuscripts, is highly significant in various respects. First, it illustrates what kind of knowledge of the *Metaphysics* and of the philosophical literature related to it Ṯābit and his contemporaries had in nineth-century Baghdad. In fact Ṯābit seems to have used as his sources one or more Arabic translations of the *Metaphysics* available at that time: certainly Usṭāṯ's version made directly from the Greek for al-Kindī and, as we have seen above, perhaps that by Isḥāq ibn Ḥunayn or Šamlī. Besides he had at his disposal the *Physics*, the *De Caelo* and Themistius'paraphrase in one of its two redactions. He may have known the Syriac version of Alexander's literal commentary on book *Lambda*, Nicolaus Damascenus' summary of Aristotle's philosophy[73], Theophrastus' *Metaphysics*[74], Alexander's *On the Principles Of the Universe* (*Fī mabādi' al-kull*)[75] and a work by Galen, lost to us, but circulating in Arabic under the title *Fī anna l-muḥarrik al-awwal lā yataḥarraku* (*On the fact that the first mover is not moved*)[76].

Secondly, Ṯābit's treatise on the *Metaphysics* offers a good perspective from which to observe how the Hellenizing Arabs of the 9th century interested in the Greek heritage reacted against the new metaphysical project elaborated by al-Kindī, shortly after its formulation. Ṯābit's *Concise Exposition of Aristotle's Metaphysics,* as Reisman and Bertolacci maintain, presented itself as an antidote to the overt Neoplatonism of the works of the circle of al-Kindī, by al-Kindī himself and his

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of Bertolacci – Reisman (2009). I'm grateful to Amos Bertolacci and to David Reisman for having allowed me to read their excellent work before publication.

[73] See Drossart Lulofs (1969).

[74] Alon (1985), 163-217; Crubellier (1992), 19-45; Gutas (1992).

[75] The *Fī mabādi' al-kull* (*On the principles of the universe*) ascribed to Alexander of Aphrodisias, lost in Greek, but attested in Syriac (Hugonnard-Roche [1997], 121-143 and in particular 126) and in Arabic, presents problems of unity, authenticity, and transmission. The attribution to Alexander was called into question by Pines (1986), 252-255 and by Gutas (1988), 215-21, Endress (1997), 1-42. We have two different Arabic versions of the same Greek original, both probably translated from a Syriac intermediate and an Arabic epitome. The two Arabic versions are entitled *Maqālat al-Iskandar al-Afrūdīsī fī mabādi' al-kull 'alā ḥasab ra'y Aristāṭālis*. The first was translated by Ibrāhīm ibn 'Abdallāh from Ḥunayn ibn Isḥāq's Syriac version; the second is ascribed to Abū 'Uṯmān ad-Dimašqī, translator of some *Quaestiones* by Alexander, contemporary to Ḥunayn ibn Isḥāq. The two versions are really close to each other and perhaps the second is a revision of the first. The text is edited: *Maqālat al-Iskandar al-Afrūdīsī fī l-qawl fī mabādi' al-kull bi-ḥasab ra'y Aristāṭālis al-faylasūf*, in Badawī (1947), 253-277. New edition and translation in Genequand (2001). The Arabic epitome entitled *Risālat al-Iskandar al-Afrūdīsī fī l-'illa al-ūlā wa-l-ma'lūl wa-ḥarakātihī wa-ḫtilāfihā wa-ḥarakāt mā yafsud wa-yakūn*), is related for its terminology and style to the complex of translations of al-Kindī's circle. This text is edited in Endress (2002), 19-74.

[76] For the title εἰς τὸ 'πρῶτον κινοῦν ἀκίνητον see Galen's own list of his works in περί τῆς τάξεως τῶν ἰδίων βιβλίων (*Claudii Galeni Pergameni Scripta minora*, 2. 123.4-5 Marquardt – Müller - Helmreich). In Ḥunayn's list of his translations (Bergsträsser [1925]; reprint [1966], 51.5-9) we find the title *Fī anna l-muḥarrik al-awwal lā yataḥarraku*. Cf. the note devoted to this text in Bertolacci – Reisman (2009), in which the authors provide a complete bibliography and try to reconstruct the contents of the work through different testimonies.

disciples – in particular by Aḥmad ibn al-Ṭayyib al-Saraḫsī (833-899), to whom a work entitled *Kitāb fī l-radd ʻala Ǧālīnūs fī l-muḥarrik al-awwal* (*The Refutation of Galen concerning the First Mover*) is ascribed[77]. But, as we shall see, Kindī's theses are not completely absent from Ṯābit's work. Considering that Ṯābit seems to be an accurate reader of the crucial chapters of book *Lambda* of Aristotle's *Metaphysics*, the fact that al-Kindī's interpretations peep out in his treatise seems symptomatic of the extent to which the metaphysical model elaborated by al-Kindī stands out immediately after its formulation[78].

Ṯābit's *Concise Exposition of Aristotle's Metaphysics* is the first extant Arabic commentary known to us of Aristotle's *Metaphysics*, or better of its theological core on the nature and the influence of the first cause (chapters 6-9 of book *Lambda*). Ṯābit's work is divided into 9 sections.

The Kindian elements are already evident in the first introductory section where Ṯābit faces the problem of the apparent disagreement between Aristotle's doctrine and that of Plato: it consists of the fact that Plato placed in a relationship of causa-causatum the essence which is not in motion and the substance, because one single concept could not embrace both. In any case, in Ṯābit's opinion, the metaphysical research propounded by the two Greek philosophers consists in a theological investigation into *what is really one, since nothing can be said about it but from the perspective of its action and relatively and from outside*[79]. It is possible to observe therefore first the fact that in limiting the intention of the *Metaphysics* to the study of the first principle, the *wāḥid bi-l-ḥaqīqati*, Ṯābit seems to testify to a theological interpretation of this Aristotelian work, current among the Arabic philosophers before al-Fārābī[80]. Besides, there appears in Ṯābit the Neoplatonic theme of the ineffability of the nature of the first principle as we have observed in al-Kindī. In *On First Philosophy*, in fact, the First Principle is described as the True One, which is in its essence that unity which in other things is present only through participation. The only predicate attributed to the True One is that of being One in its essence[81].

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[77] This treatise by Aḥmad ibn al-Ṭayyib al-Saraḫsī is recorded by Rosenthal (1943), 57, note 21 under the title *Kitāb fī l-radd ʻala Ǧālīnūs fī l-maḥall al-awwal*, the same mentioned in Ibn Abī Uṣaybiʻa, *ʻUyūn al-anbāʼ fī ṭabaqāt al-aṭibbāʼ*, I. 215.20-21 Müller.

[78] Cf. Martini Bonadeo (2007a), 125-147

[79] Bertolacci – Reisman (2009).

[80] See Bertolacci (2001), 257-295.

[81] Cf. for example al-Kindī, *Fī l-falsafa al-ūlā,* I. 160.15-20 Abū Rīda (1950); Ivry (1974), 113: "The True One, therefore, has neither matter, form, quantity, quality, or relation, is not described by any of

In the second section the First Mover is described as *the cause of the existence and perdurance of forms of all corporeal substances*. Ṯābit demonstrates in a very articulated way that the First Mover, in so far as it is cause of the movement of all the corporeal substances, those which exist and those which are generable[82], is also the cause of their existence. This thesis is reminiscent of the one set out by al-Kindī: "We do not find the truth we are seeking without finding a cause; the cause of the existence and continuance of everything is the True One, in that each thing which has being has truth. The True exists necessarily, and therefore beings exist[83]. In comparison with al-Kindī, Ṯābit follows Aristotle's text more faithfully, because he gives special emphasis to the fact that the first principle, even if transcendent, is the first cause of an ordered series of causes whose effect is the universe.

In section 5 Ṯābit reaffirms the perfect consistency of the eternity of the universe with the caused nature of its essence, even if he does not argue it. The attempt is to save in some way, without parting company from the Aristotelian doctrine, one of the main points of the Islamic creed: creation. Ṯābit's doctrine of section 5 can be usefully compared with the famous passage of the pseudo-*Theology of Aristotle*:

> "How well and how rightly does this philosopher describe the Creator when he says: «He created mind, soul and the nature and all things else»! But whoever hears the philosopher's words must not take them literally and imagine that he said that the Creator fashioned the creation (*al-ḫalq*) in time. If anyone imagines that of him from his mode of expression, he did but so express himself through wishing to follow the custom of the ancients. The ancient were compelled to mention time in connection with the beginning of creation because they wanted to describe the genesis (*kawn*) of things, and they were compelled to introduce time into their description of genesis and into their description of the creation (*al-ḫalīqat*) – which was not in time at all – in order to distinguish between the exalted first cause and lowly secondary causes. The reason is that when a man wishes to elucidate and recognize causes he is compelled to mention time, since the cause is bound to be

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the remaining intelligible things, and has neither genus, specific difference, individual, property, common accident or movement; and it is not described by any of the things which are denied to be one in truth. It is, accordingly, pure and simply unity, having nothing other than unity, while every other one is multiple".

[82] Cf. *Metaph. Λ* 1,1069a 30-31.

[83] Cf. al-Kindī, *Fī l-falsafa al-ūlā,* I. 97.1-12 Abū Rīda (1950); Ivry (1974), 55.

> prior to its effect, and one imagines that priority means time and that every agent performs his action in time. But it is not so; not every agent performs his action in time, nor is every cause prior to its effect in time. If you wish to know whether this act is temporal or not, consider the agent; if he be subject to time then is the act subject to time, inevitably, and if the cause is temporal so too is the effect. The agent and the cause indicate the nature of the act and the effect, if they be subject to time or nor subject to it[84]".

Section 7 is the longest and the most difficult and raises the following problem: *the first principle is not a body*. According to Reisman and Bertolacci, this section is an expanded version of *Metaph.* Λ 7, 1073a 5-11 where Aristotle affirms that the Immobile Mover does not have magnitude, nor parts, but is indivisible. It is worth noting that the transformation of the Aristotelian doctrine of the first principle's lack of magnitude into that of the first principle's lack of corporeity shows a trace of the influence of Themistius, who in his paraphrase of *Metaph.* Λ 7, 1073a 5-11 adds to the characteristics of the Immobile Mover the fact of being bodiless. Averroes, quoting Themistius in the exegesis of the same Aristotelian passage, also reports Themistius as regarding magnitude (*'iẓam*) and body (*ǧism*) as equivalent[85].

Aristotle's arguments are reproduced in the second proof presented by Ṯābit, who engages in four different demonstrations, all constructed as *reductiones ad absurdum*. The fourth demonstration runs as follow: suppose the first principle is a body, and every body is in motion: if every body moves toward a perfection and if every body desires the perfection towards which it moves, the first principle will desire the perfection towards which it moves. This perfection can be either external or within itself. If it is external, this perfection would be more suitable as the first cause and the first principle; if it is within itself, the first principle would not need any motion towards the perfection which is already in itself (*Metaph.* Λ 7, 1072b 8). Both hypotheses are impossible if we refer them to the first principle which, therefore, cannot be a body. If we examine the above-mentioned alternative and speak of something which is a body, on the other hand, we would have to follow Aristotle, who demonstrates in the *Physics* that the cause of everything in motion is external to it

[84] Lewis' translation 231 in *Plotini Opera*. Cf. Dieterici (1882), 13. 11-14.9; Badawī (1955), 27.7-28.3; D'Ancona (2001), 106-109; Bettiolo et *alii* (2003), 237-238.
[85] Bertolacci – Reisman (2009), *Commentary* sec. 7. Cf. Averroès, *Tafsir ma ba'd at-tabī'at*, 1636.4-5 Bouyges (1990[3]).

(*Physic*. *Θ* 6,259b 13-14). The Aristotelian incompatibility between perfection and movement (*Metaph*. *Λ* 7, 1072b 8) was used by al-Kindī, as we have seen before, to focus on the ontologically deficient state of the universe compared with the immobile perfection of the principle which created the universe. I have alredy pointed to the passage in which he claims that motion is change, and that what is eternal does not move, for it neither changes nor moves from deficiency to perfection[86]. non mi pare utile ripetere

In section 8 the theme of *Metaph*. *Λ* 8, 1074a 31-38 is developed. Ṯābit claims that *the first principle is one*. At the end of this section, he ascribes to Aristotle the doctrine that "one arrives at the correct view about Oneness (*tawḥīd*) only by way of negation, meaning that there is no beginning, matter, or motion, to this unmoved essence and this first principle". In this point it seems clear that Ṯābit is using a topic already adopted by al-Kindī when, starting from an analysis of the different meanings of "one" presented by Aristotle in *Metaph*. *Δ* 6, 1015b 15-1017a 6, where one is intended as a numerical principle or first measure of a genus, indivisible as regards the quantity and the species, he passes to "one" as non-multiplicity, i.e. oneness (*tawḥīd*) transcending every predication[87].

In the last section, finally, Ṯābit maintains that *the substance of the first principle is knowledge*, or better science, the topic of *Metaph*. *Λ* 9. The first principle is pure form, the source of every form. When it sees itself, it sees not only itself (*Metaph*. *Λ* 7, 1072 b 19-20; *Metaph*. *Λ* 9, 1074 b 33-34), but also the other forms and so it has knowledge of everything; it is the act of seeing and therefore its substance is science. Reisman and Bertolacci remark that a similar development of the Aristotelian doctrine of the divine intellect can be found in Themistius' paraphrase: the divine intellect collects all the forms and the first intellect in thinking itself, it thinks all intelligible things[88]. The influence of Plotinus in Themistius' doctrine is clear[89].

Although al-Kindī proposes a negative theology of the first principle and explicitly states that the True One does not have form[90], sometimes he maintains that

[86] Cf. al-Kindī, *Fī l-falsafa al-ūlā,* I. 114.4-8 Abū Rīda (1950); Ivry (1974), 67-68.
[87] Cf. al-Kindī, *Fī l-falsafa al-ūlā,* I. 159.3-161 Abū Rīda (1950); Ivry (1974), 110-112.
[88]Bertolacci – Reisman (2009), *Commentary* sec. 9.
[89]Pines (1987), 187-188 and Bragues (1999), 37 and note 3.
[90] Cf. al-Kindī, *Fī l-falsafa al-ūlā,* I. 160.14 Abū Rīda (1950); Ivry (1974), 112.

by knowing the first principle, we know all things, since, following the Neoplatonic model, the first cause has all things within itself[91]. In addition, in his *On the Proximate Efficient Cause of Generation and Corruption*, al-Kindī ascribes to the first principle, notwithstanding its ineffability, an intellectual nature, in so far as it knows. The first principle is *al-ḥākim*: like the Koranic God, it knows.

Ṯābit's doctrine on the first principle checks al-Kindī's against Aristotle's model, not without assuming some of the Kindian theses. This ambivalent attitude allows us to recognize the reaction against the new metaphysical project elaborated by al-Kindī in his *On First Philosophy*, which, shortly after its elaboration, seems somehow to impose itself or, at least, seems already to represent a model which other doctrines have to reckon with.

This is particularly true in the case of al-Fārābī (870-950). Following in the footsteps of al-Kindī and the first *falāsifa,* al-Fārābī is influenced by the Neoplatonic doctrine, and more precisely by Alexandrian Neoplatonism[92], as for what concerns the modality of action of the first principle and its causal relation with natural beings. On the other hand, he depends more explicitly on Aristotle and overall on the Arabic Aristotle of the origins of the *falsafa* for his description of its nature[93], as it appears from Fārābī's main work: *The Principle of the Opinion of the People of the Excellent City* (*Mabādi' ārā' ahl al-madīna al-fāḍila*)[94].

The descriptions of the first cause and the origin of all beings which we read in the first three sections of this treatise show a synthesis between the Aristotelian doctrine of the nature of the first immobile mover and the Neoplatonic participation of the derivative beings in the One. In the first section of this treatise al-Fārābī describes the first principle as «the first being (*al-mawǧūd al-awwal*) which is the cause of the existence of all the other existents»[95]. This is already far removed from Aristotle: the Aristotelian first principle is not the efficient cause of the existence of other things, but the immobile cause of the movement of the universe. Al-Fārābī claims that the first principle is perfect and it has a perfect existence in act; he emphasizes the self-sufficiency of this principle and its creative power[96]. This amounts to a conflation of

[91] Cf. al-Kindī, *Fī l-falsafa al-ūlā,* I. 101.15-20 Abū Rīda (1950); Ivry (1974), 56.
[92] Vallat (2004).
[93] Druart (1992), 127-148.
[94] Walzer (1998).
[95] al-Fārābī, *Mabādi' ārā' ahl al-madīna al-fāḍila* 56.1-2 Walzer (1998).
[96] *Ibidem*, 56.2-58.1.

the Neoplatonic doctrine of the production of effects as a result of the perfection of the first principle together with the Aristotelian doctrine of the causality of what is in act. Al-Fārābī's first principle is, like Aristotle's and Plotinus', completely immaterial; tracing back to the Neoplatonic model of the pseudo-*Theology*, al-Fārābī states that the first principle is without any form and absolutely simple[97]: it is One[98]. This recalls the Platonic distinction between principles and the things which take part in them, because al-Fārābī affirms that if there were another thing like the first principle, the latter would not be perfect, since what is perfect in every rank is only one. Finally, the first principle does not have contraries[99]: otherwise the first principle and its contrary would have a common substratum or a common genus, which is impossible.

Al-Fārābī had always maintained in the first section of this treatise, recalling *Metaph. Λ* 7 and 9, that the first principle is in its substance intellect in act, whose activity consists in the contemplation of its essence: in other words, it is thought of thought (*Metaph. Λ* 7, 1072 b 18-24; *Λ* 9, 1074 b 33-35)[100]. It is knowing (*'ālim*) and wise (*ḥākim*)[101]; it is true (*ḥaqq*) and eternally living (*ḥayy*), a pure intellectual life of bliss (*Metaph. Λ* 7, 1072 b 25-30)[102]. From its activity of self-contemplation, because of an overabundance of being and perfection, a process of emanation (*fayḍ*) begins; thanks to this process, everything is caused to be. Now he writes:

> The First is that from which everything which exists comes into existence. It follows necessarily from the specific being of the First that all the other existents which do not come into existence through man's will and choice are brought into existence by the First in their various kinds of existence, some of which can be observed by sense-perception, whereas others become known by demonstration. The genesis of that which comes into existence from it takes place by way of an emanation (*fayḍ*)[103].

[97] *Ibidem*, 58.1-9.
[98] *Ibidem*, 60.14-62.7.
[99] *Ibidem*, 62.8-66.7.
[100] *Ibidem*, 70.1-72.6.
[101] *Ibidem*, 72.7-74.1.
[102] *Ibidem*, 74.2-76.13.
[103] Transl. Walzer: *Ibidem*, 88.10-15, 89.

The process of emanation of the things from the first principle does not involve any alteration: in causing the things to be, it does not aim to the perfection it would lack[104], it is neither subdivided nor diminished, on the contrary, it remains a unique essence and substance[105], it does not lack anything and nor does it need anything[106].

Once again, in *The Principle of the Opinion of the People of the Excellent City* there appears that synthesis operated by al-Fārābī between the Aristotelian and the Neoplatonic account: the intellectual nature of the first principle —at the same time the One and the First Intellect — and its own activity, that is to say self-contemplation, is the cause of the production of all the beings which come to be by way of emanation and through participation in its unity.

This does not imply that al-Fārābī limits himself to a theological interpretation of metaphysics. The novelty in al-Fārābī and the *falāsifa* of his time is the consideration of the epistemological *status* of metaphysics.

In tenth-century Baghdad, during the decline of the ‘Abbāsid caliphate and the following Būyid age[107], a circle (*maǧlis*) of physicians, philosophers and translators of different religious affiliation grew up. As G. Endress has shown[108], the Christians teachers in the circle, starting from Mattā ibn Yūnus (m. 940) found in the Muslim scientists a keen interest in the epistemology of sciences, and they proudly offered the Peripatetic tradition of logic as the methodology for rational discourse. To these teachers the *falāsifa* from al-Fārābī onwards owe the recovery of an Aristotelian logic more complete and faithful than that which had been known hitherto to Arab readers. The full *Organon* was at their disposal and the *Kitāb al-Burhān* (*Book of Demonstration*, i.e. *Analytica Posteriora*) provided al-Fārābī with a coherent system of deduction and demonstration, embracing all levels of rational activity. This system played a guiding role in the division and hierarchical classification of the sciences leading to the First Philosophy, i.e., metaphysics.

As for this feature, namely, the systematization of knowledge, it is useful to follow the *Enumeration of the Sciences* (*Iḥṣā’ al-'ulūm*) of Abū Naṣr al-Fārābī. Here

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[104] *Ibidem*, 90.4-6; 11-16.
[105] *Ibidem*, 92.3-7.
[106] *Ibidem*, 92.8-94.3.
[107] Cf. Endress (1988), 122-123. On the beginning of the Būyid age cf. Kraemer (1986), 31-102. On the social-economic crisis and the contemporary cultural vigor of Baghdad during this period cf. *Ibidem*, 26-27. On other intellectual Arabic developments, figures, and traditions of this time such as the Ismāīlī thought, the Brethren of Purity, and the Neoplatonic tradition transmitted by al-Kindī’s circle through al-Āmirī, Ibn Farīġūn and al-Isfizārī see Adamson (2007a), 351-370; Adamson (2008), xii-302.
[108] Endress (1990), 16-17.

he proposed for the first time in the Arabic-Islamic world a system, which was meant to include both secular knowledge, organized according to Aristotle's classification, and the Arabic-Islamic sciences: philosophy and religion (i.e., the universal sciences), the rational sciences and finally the disciplines typical of the Arabic-Islamic linguistic and religious community, which became complementary parts of the same hierarchical system of knowledge[109].

Hence Fārābī in his system of the sciences ignores the criterion underlying the classification of the philosophical sciences into theoretical and practical as well as that underlying the distinction of the sciences into rational (*'ulūm 'aqliyya*) and traditional-religious (*'ulūm naqliyya*). The whole of the sciences he describes aims to embrace all the generally known sciences (*mašhūra*) and a field larger than that of the philosophical sciences; it includes the sciences of language, the science of law, and that of theology. The Koranic sciences are in this way integrated into the field of the philosophical ones. At one and the same time, logic, physics, metaphysics, and politics receive their final legitimation within the Arabic-Islamic sciences.

In the *Enumeration of the Sciences* al-Fārābī states that metaphysics, or "divine science", whose more complete account is given in Aristotle's *Metaphysics*, is subdivided into three parts. (i) The first investigates beings as beings and their attributes. (ii) The second investigates the principles of the demonstrations of the departmental sciences (mathematics and physics, but al-Fārābī also included logic) and corrects the wrong opinions held about them by the Ancients[110]. (iii.) Finally, the third part investigates those beings that are neither bodies nor attributes of bodies and examines whether or not they exist. Once their existence is proved by demonstration, this part examines whether they are one or many. Once it is proved that they are many, but finite in number, it examines whether they are hierarchically ordered in perfection or not. Once the conclusion is reached that there is such a hierarchy, the highest part

[109] Transl. Rosenthal (1975), 54-55: "In this book we intend to enumerate the generally known sciences (*mašhūra*) one by one and to give a general survey of each individual science, also to point out possible subdivisions and to give a general survey of each subdivision. The sciences can be classified in five groups, that is: (i) Linguistic (*'ilm al-lisān*), with subdivisions, (ii) Logic (*'ilm al-manṭiq*), with subdivisions, (iii) the mathematical sciences (*'ulūm al-ta'ālīm*), that is, arithmetic (*'ilm al-'adad*), geometry (*'ilm al-handasa*), optics (*'ilm al-manāẓir*), mathematical astronomy (*'ilm al-nuǧūm*), music (*'ilm al-mūsīqī*), technology (*'ilm al-aṯqāl*, lit. the science concerned with the transportation of loads), mechanics (*'ilm al-ḥiyal*), (iv) the natural sciences and metaphysics – or Divine Science (*al-'ilm al-ṭabī'ī wa-l-'ilm al-ilāhī*) – both with subdivisions, (v) Politics (*al-'ilm al-madanī*), with subdivisions, jurisprudence (*'ilm al-fiqh*) and speculative theology (*'ilm al-kalām*)". See Al-Fārābī, *Iḥṣā' al-'ulūm*, 3.4-11 Amīn; 7.5-8.4 Gonzáles Palencia.

[110] Cf. Ramón Guerrero (1983), 211-240 and in particular 232.

of metaphysics establishes that the supreme rank of perfection of incorporeal beings is only one: the first principle, above which nothing more perfect exists. This first principle is absolutely simple: it is the first and true One, the cause of the unity and being of all derivative realities. It is God. The highest part of metaphysics also has as its own object the modes according to which God, the first and true One, produces and rules all things. Finally, this third part of metaphysics refutes all the false views about God and his action[111].

In his description of the tasks and objects of metaphysics as science, M. Mahdi has pointed out the discrepancy between this model, and in particular its third part, and the one whereby al-Fārābī presents the same science in his treatises of deeper theoretical value, the *Book of Letters*, a hermeneutic of the terms used in metaphysics, or the *Fī aġrāḍ mā ba'd al-ṭabī'a* (*The Aims of the Metaphysics*) [112].

In the latter[113] al-Fārābī claims that many people have supposed that Aristotle's *Metaphysics* is devoted to the discourse on the Creator, the intellect and the soul, and that the science of metaphysics and that of *tawḥīd* are one and the same: but this is true for book *Lambda* only. On the contrary, metaphysics has its own object, different from those mentioned above: it is the universal science (*al-'ilm al-kullī*), which, unlike the particular sciences, studies what is common to all beings, for example existence or unity (*Metaph. Γ* 1, 1003 a 21-6). For this reason the study of the principle common to all beings, which we are obliged to designate with the name of God, falls under the universal science. Hence, necessarily, the divine science is part of this universal science, because God is the principle of absolute being, not of some being and not some other. The part of this science which examines the principles of being is the divine science, because these matters are not peculiar to physics, but are more universal than those dealt with by physics; this science is higher than the science of physics and comes after it: therefore, it is called "the science of what comes after physics". Then, al-Fārābī claims that, since the science of a given object is also the science of its contrary, metaphysics is also the science of non-being and multiplicity, Finally, it investigates the principles of things, dividing them to obtain the objects of

[111] Al-Farabi, *Catálogo de las ciencias*, 87.10-90 González Palencia.
[112] Cf. Mahdi (1975), 130.
[113] Al-Fārābī, *Fī aġrāḍ al-ḥakīm fī kull maqāla min al-kitāb al-mawsūm bi-l-Ḥurūf*, 34-8 Dieterici; al-Fārābī, *Maqāla Fī aġrāḍ mā ba'd al-ṭabī'a*, (anonymous edition Ḥyderabad). Cf. Dieterici (1892), (reprint 1999), 34-8, 54-60, 213-214; Druart (1982), 38-43; Ramón Guerrero (1983), 237-242; Endress (1990), 19.

the departmental sciences. Thus, metaphysics, as in the tripartite division described above, and in particular in the second part of it, also has an epistemological task: to ground the principles of the particular sciences. In the conclusion of this treatise, al-Fārābī enumerates all the books of the *Metaphysics* with their contents (except *A* and *N*)[114].

However interesting Mahdi's remark may be, it is worth making some further observations. Far from contradicting the tripartite division of the science of metaphysics set out in the *Enumeration of the Sciences,* the passage summarized above, makes it even more evident that metaphysical science is meant to be the highest of the rational sciences: it is the universal science which studies the principles of being *qua* being. According to al-Fārābī, therefore, metaphysical science is ontology (*Metaph. Γ* 1, 1003a 31-32), the universal science, which is at the same time *both* first philosophy and theology (*Metaph. E* 1, 1026a 19-25)[115].

Recently an illuminating and fascinating study by Th.-A. Druart has inquired the role of Aristotle's doctrine of categories in al-Fārābī's concept of metaphysics as ontology and universal science[116]. According to Druart, al-Fārābī's Metaphysics is the science of that which is outside the categories and grounds them. In the *Enumeration of the Sciences* and in the *Book of the Categories* (*Kitāb al-maqūlāt*)[117] and more clearly in the *Long Commentary on Aristotle's Categories*[118], al-Fārābī states that Aristotle's categories are singole notions based upon sense-objects. Hence the immaterial beings, the universals that are not really single notions – as for example the 'void', a combination of three single notions: 'place', 'deprived' and 'body' –, and the "transcategorial" universals which apply to all the categories and even to immaterial beings do not fall under the categories. Through the analysis of the *Philosophy of*

[114] Criticizing Druart's claim that in this treatise *A* and *N* are grouped together with *α* and *M* (Druart [1982], 39), Bertolacci (2005), 259 and Bertolacci (2006), 21 claims that books *A* and *N* are omitted (cf. also Ramón Guerrero [1983], 234). In my opinion the hypothesis of *A* and *N* grouped together cannot be easily rejected. As we will see, there is at least one other example in 'Abd al-Laṭīf al-Baġdādī of the circulation of two books of the *Metaphysics* joined together. Besides Vallat (2004), 15 note 1, suggests that al-Fārābī's *Kitāb al-wāḥid wa 'l-waḥda* (Mahdi [1989]) can be interpreted as a sort of commentary on *Metaphysics* book *N*.

[115] Contemporary scholars insist on the distinction in Aristotle's thought between a theological meaning and an ontological meaning of the first philosophy: cf. Mansion (1958), 165-221; Patzig (1979), 33-49; Berti (1965); Leszl (1975); Berti (1977); Kahn (1985), 311-338; Frede (1987), 81-95; Berti (1994), 117-144.

[116] Druart (2007), 15-37.

[117] Al-'Aǧam (1985), I.89-131; Dunlop (1958), 168-197; Dunlop (1959), 21-54.

[118] Zonta (2006), 185-254.

Aristotle(*Falsafat Arisṭūṭālis*)[119], the *Book of Letters*, and the *The Aims of the Metaphysics* – she shows that according to the Farabian Aristotle the realm of categories "extends to all the sciences and arts, except metaphysics". Metaphysics is a new philosophical discipline and it has two different objects of study: (i.) what is beyond the categories, such as the efficient and the final causes of what the categories and the various arts and sciences comprise, soul, intellect and the First cause and (2.) what cuts across the categories, i.e., the most universal intelligibles: 'being'[120] and the contrary relatives.

If al-Kindī and the *falāsiṭa* before al-Fārābī shared a theological interpretation of metaphysics, al-Fārābī included it in the system of sciences, emphasized its leading role and saw it as the universal science which inquires into and demonstrates the principles of being *qua* being, the science under which theology falls, but as its crowning part. The metaphysical science, whose foundations were given by Aristotle's *Metaphysics* from the beginnings of *falsafa*, had by this time assimilated Kindī's theology and was ready to play the role of universal science ascribed to it by Fārābī's philosophy. This notion of metaphysics lies in the background of Avicenna's one.

[119] Mahdi (1970).

[120] Cf. Menn (2008), 59-97, a paper devoted to the *Book of Letters,* to its relation with Aristotle's *Metaphysics Δ* and *Posterior Analytics II* and to al-Fārābī's concept of being.

Metaphysics in the Orbit of Islam

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Metaphysics takes its name from a collection of Aristotle's treatises bundled together around the first century BCE. The treatises collected as Aristotle's "Metaphysics" are complexly related and it is far from clear whether they have a common subject and if so what that might be. The two candidates most often put forward are 1) being (or beings) and 2) the first and highest being. Aristotle had also identified another science, physics, as dealing with beings capable of change so it seems that to distinguish the two one would have to suppose it at least possible that there be beings not capable of change. Aristotle himself thought there were such, the movers of the celestial spheres, but as debate about this and related issues has developed over the more than two millenia which separate him from us the boundary between physics and metaphysics and that between metaphysics and theology has shifted frequently. What has remained constant is the thought that if there is a branch of philosophy that treats fundamental questions, metaphysics, is that branch.

Anyone setting out to study the history of metaphysics has to make a fundamental choice between studying the history of Aristotle's texts collectively called "Metaphysics" and the traditions they spawn and studying the history of fundamental philosophical problems whether or not they were considered in those texts or traditions. Neither is really tractable (the literature is too vast), but the first promises to be less intractable and

is typically taken in discussions of "Islamic/Arabic metaphysics."[1] The second, though, offers an opportunity to set the first in a wider context. It is this approach that is, as far as possible, taken here.[2]

Anyone attempting a historically informed study of metaphysics within the orbit of Islam has another task- that of determining the scope of the enterprise. The orbit of Islam is very wide, encompassing not only a large geographical area but a large number of philosophical and religious traditions with which Islamic theorists fruitfully interact over a period which now extends almost fifteen hundred years. Study of the history of Islamic philosophy has grown up in a milieu in which the focus has been on its impact on Latin Christian (and to a lesser extent Jewish) philosophy and has tended to downplay developments with no impact on the translation of Arabic texts into Latin-thus effectively ending with Averroes. This paper will have the same limitation.[3]

0. Background

There are, broadly speaking, two disciplinary matrices within which the issues we would now identify as metaphysical emerge within the orbit of Islam. By the early 2nd century A.H./ 8th C.E., there had grown up within the Islamic world a recognizable

[1] Cf. For example, Thèrese A. Druart's article on Fārābī's Metaphysics in the online *Encyclopedia Iranica*. For discussion of the subject of metaphysics in the Aristotelian tradition, cf. Michael Frede, **"**The Unity of General and Special Metaphysics: Aristotle's Conception of Metaphysics," reprinted in *Essays in Ancient Philosophy* (Minneapolis: University of Minnesota Press**,** 1987), pp. 81-95.

[2] Within the Latin tradition, the fundamental philosophy of figures, like Aquinas, who practiced what within the Islamic tradition would certainly be called *kalām* is taken without question to be metaphysics whether or not the issues it treats are to be found in commentary on Aristotle's text. I am proposing we take the same attitude to the Islamic tradition. Al-Ghazālī is as much a metaphysician as Avicenna, he merely has a different metaphysics! This approach conflicts with that taken by writers within the *falsafa* tradition who were concerned to distinguish what they often took to be the demonstrative science of metaphysics from *kalām* which they took to be 'dialectical.'

[3] This limitation reflects mostly my own ignorance of later developments, but it reflects too both the state of the field and limitations of space.

discipline, *kalām*, devoted to the reasoned defense of the Islamic faith. By the middle of the 3rd century A.H./ 9th C.E., there had emerged another discipline, *falsafa*, devoted to the interpretation and articulation of what I will call the Peri-Platonic traditions - the body of texts and doctrines emerging from Plato's Academy and carried on not only by *soi-disant* Platonists but by Aristotle and his followers. These two disciplinary matrices frequently, but not always, saw themselves and were seen by others as providing incompatible paths to genuine understanding. From our perspective, both deal with metaphysical issues in recognizably philosophical ways.

Christianity had grown up within the Greco-Roman world and Christian theology wed itself early to philosophical terminology and doctrine that originated in the Peri-Platonic traditions. It embraced the idea that there were spirits without spatial (and perhaps temporal) location, but with influence in place and time. Both God and human souls were, in some sense, among them. It embraced form/matter and substance/accident terminology and used it freely to explain its central doctrines. Thus, despite the struggles between Christianity and late Platonism, an integration of Christianity and the Peri-Platonic traditions could be and was achieved. This meant that as long as there were significant Christian minorities within the Islamic world there would be a presence of those strands of Greek metaphysical thought.

Islamic theology did not follow Christian theology in these commitments. To the best of our knowledge the formulation of the Qurʾān was not influenced by Peri-Platonic philosophy in the way (say) John's Gospel seems to have been and there were no very early attempts to interpret it in Peri-Platonic terms. By the time there were, alternative interpretive traditions were already in place. Moreover, there are significant connections

between the grammatical structure of Greek and Latin and the metaphysical categories and distinctions speakers of those languages (and their descendents) seem inclined to make. Arabic grammar differs significantly and insofar as philosophical speculation was (and is) formed by reflection on the Qurʾān one might expect it will differ to some extent. These issues emerge in the translation of Greek philosophical texts into Arabic and they emerge in efforts to translate early Arabic philosophical terminology into contemporary English.

Kalām emerged before *falsafa* and the metaphysical issues with which it was first concerned differ from those central to the Peri-Platonic traditions. The first significant discussions among Muslims of what we would now consider a metaphysical issue seem to have been over issues of predestination and moral responsibility. Islam, like other Abrahamic religions, teaches that God knows and in some sense decrees everything that happens. This issue is, as we shall see below, closely aligned with how to understand agency and causality.

A second issue that seems to emerge quite early among thinkers in Islam is how to understand creation. That God had created the world was a basic tenet of Islam- again a tenet it shares with the other Abrahamic religions. But whether this entailed that there was a first time and if so whether there had been nothing but God before the world was made was more controversial. The intellectual matrix within which these issues arose in Islam was already complex. Jewish thinkers, like Philo of Alexandria, had argued that creation need not involve a first moment. The Christian Church Fathers had debated what it meant to say that God created out of nothing. With the possible exception of Plato, Greek thinkers were unanimous that something of the physical world had always existed

although there was some debate about whether it had always formed a cosmos. Aristotle and Proclus had set out to prove that the world had always existed much as we find it now. These arguments played a role in the late antique intellectual struggle between the religion created by the Neo-Platonists and Christianity which by the late antique period had more or less settled on a temporal understanding of creation. John Philoponus, in particular, had set out to refute the neo-Platonic consensus and to argue that the world we find around us must have been created in time.

A third issue soon occupying the attention of thinkers within Islam was the existence and nature of God. The existence of something they were prepared to call 'God' was common ground among the Abrahamic religions and the Peri-Platonic traditions. However, the Peri-Platonic traditions had claimed demonstrative knowledge of the existence and nature of that something and their conceptions of it differed greatly from orthodox Judaism and Christianity. The question arises whether such demonstrative knowledge of the existence and nature of God as conceived by orthodox Christians had already arisen within Christianity. The Islamic conception of God differed again. Like Judaism and unlike Christianity, which from early on had to struggle with the metaphysics of the Trinity, Islam is fully committed to the unicity and uniqueness of Allāh. One of the oldest and most natural philosophical issues concerns whether predications of the form A is B assert or presuppose that besides A there is B, in some manner distinct from A, which nonetheless A is. If so, how could anything informative be correctly said of anything as utterly unified and unique as God? The issues of the unicity and nature of God, the eternity of the world, and the character of agency and

causality were all discussed within both the *kalām* and *falsafa* disciplinary matrices. They are taken up below. First, though something should be said about being and existence.

1. Being and Existence

A great deal of ancient Greek philosophy can be seen as meditation upon Parmenides' doctrine that non-being cannot be thought and hence that what can be thought must in some sense be. For those like Aristotle, the atomists and the Stoics, for whom thought reflects being, the priority runs one way - that only what is can be thought. For those like Plotinus and Proclus, for whom thought is creative, it runs the other-that whatever can be thought thereby is. What being, so understood, has to do with existence as we ordinarily understand that is less clear. There are prime numbers, do they exist?

Among the major schools of Greek philosophy it seems only the Stoics countenanced things which do not exist.[4] Within the Peri-Platonic traditions, and within the Epicurean tradition, it does not seem that a distinction between being and existence was drawn. How the Stoics understand subsistence is controversial but one plausible suggestion is that something subsists just in case it can be (consistently) thought about. [5] Within the Peri-Platonic and Epicurean traditions, anything that can be thought about exists. The Stoics, on the other hand, reserve existence for what can causally interact.

This debate is a philosophical perennial and it emerges within the earliest philosophical thought within Islam of which we have any record. One core doctrine of Islam is that God, Allāh, is a Creator. When things are created they exist and very natural questions include whether God could have not created those very things and whether

[4] The widest Stoic category is not beings (*onta*) but 'something' (*ti*) and the Stoics grant that a number of items - place, *lekta*, the void, and time do not have existence but subsistence (*hypostasis*).

[5] This idea has been explored by Jacques Brunschweig and Vanessa de Herven, cf. Vanessa de Herven "How Nothing Can be Something: The Stoic Theory of Void," unpublished manuscript.

there are or could be other things which were not created? Such questions raise issues about the ontological status of possibles and about whether the category of thing (*shayʾ*) is wider than the category of existent (*mawjūd*).

The ontology of the early kalām traditions appears to have been structured around two concepts: 'subject' (*jawhar*) and 'what accrues' (*ʿarḍ*). The distinction seems to have been in the first instance a grammatical one- perhaps roughly that between 'what is spoken of' and 'what is said about it.' Within the *kalām* tradition, '*jawhar*' was taken for 'substance' and '*ʿarḍ*' for 'accident.'[6] Debates among the mutakallimūn centered on whether: 1) there were both substances and accidents or just one or the other 2) if there were subjects whether they were infinitely divisible or made up of indivisibles (atoms) 3) if there were accidents whether they required a substratum or could exist independently 4) whether all subjects were bodies or parts of bodies. Thinkers were divided on all of these issues and there is not space here to trace out their disagreements.[7] Instead, I will introduce briefly one of the most striking–and most studied positions- that of Abū-al-Huḍayl al-ʿAallāf.

Abū-al-Huḍayl is the standard bearer of what has become known as *kalām* atomism. He apparently claimed that the world is composed of a body (*jism*) and each body is made up of indivisibles (*juzʾ* / *ajzāʾ*). Each *juzʾ* is surrounded by six others, two

[6] Cf. Al-Baghdādī, *Uṣūl al-dīn* (Instanbul, 1928), 33, 13. Some scholars, e.g. Richard Frank, have argued that in early *kalām* contexts '*jawhar'* means 'atom.' This seems to me unlikely. Even those who thought that all substances were atoms were prepared to admit that the debate about this was not a debate about the word. Others, e.g. David Bennett, have preferred to translate '*jawhar*' as 'body.' It may be that certain authors think that all and only bodies are substances but again this is a substantive philosophical issue.

[7] Some of the doctrines developed were highly detailed. For example, the Basra school of the Muʿtazila argued that the universe is consisted of God, atoms and twenty-two types of accidents- precisely the same number later calculated by Ibn Haytham as the number of visible 'intentions' (*maʿānī*).

in each of the three orthogonal directions. An individual *juz'* has only two accidents – existence (*kawn*) and the feature of abutting (*mumāssa*) six others.[8] The minimal body (*jism*) consists of seven of these *ajzā'* and at that point one has a subject which can bear accidents, like color and location. Each *juz'* is, of course, a *jawhar* but so is each *jism*. The indivisibles can bear the accidents of existence and abutting and larger bodies can bear others. In particular, larger bodies can move and when they do move they bear a motion which is an accident distributed among their parts.

Why might a philosopher hold such a view? One of the earliest and most basic metaphysical questions is the relative priority of the parts and whole of a composite object. On the one hand, it seems that a genuine object can hardly just be a set of relations among others. On the other hand, it seems that everything with which we are familiar is composed of parts many of which do not depend on the whole for their existence. Abū-al-Huḍayl embraces the second horn of this dilemma and it was one of the issues on which he was opposed by his nephew, Ibrāhīm al-Nazzām.

Many of the metaphysical debates among the early mutakallimūn center upon whether there is anything incorporeal, whether what is corporeal is infinitely divisible, whether there are both substances (*jawhar*) as well as accidents, and if so, whether they are themselves bodies (*jism*) or components of bodies. There is much here that remains to be understood but it is clear enough that Aristotle and Plato are not the major figures in this development. All that changes with the massive translation program of Greek work into Arabic supported by the Abbasid caliphs. We can see the early result in the thinking of al-Kindī. It seems to be with al-Kindī that we find the first mention in the orbit of

[8] *Kawn* has the connotation of what has been produced or generated. It is thus likely better translated by 'existence' than 'being.'

Islam of a distinct subject which was conceived as metaphysics or first philosophy. In his work, *On the Quantity of Aristotle's Books*, al-Kindī writes:

> His purpose in his book called *Metaphysics* is an explanation of things that subsist without matter and, though they may exist together with what does have matter, are neither connected with nor united to matter; and the oneness [*tawḥīd*] of God, the great and exalted, and an explanation of His beautiful names, and that He is the complete agent cause of the universe, the God of the universe and its governor through His perfect providence and complete wisdom.[9]

Here al-Kindī expressly connects two thoughts–that there is a science of beings with no connection to matter and that this science is concerned with the unity, creativity, and providence of God. For al-Kindī, metaphysics is both the science of immaterial things and the science of God.[10] These are connected because al-Kindī claims that God is that of which one can say that it (its '*dhāt*') is its 'thatness' (*anniyya*). God is one (*wāḥid*) and this oneness just is God's '*anniyya*' or '*huwiyya*.' '*Anniyya*' and '*huwiyya*' are among the most mysterious terms in Islamic metaphysics. They were used by the earliest translators of Greek philosophical texts to translate both '*on*/*onta*' and '*einai*' and so are naturally and usually translated into English as 'being' (and sometimes as 'existence'). However, neither has the connotations one would expect from such translations into English because 'being' is a participle formed from a verb and so suggests a descriptive term in a way that neither '*anniyya*' nor '*huwiyya*' does. '*Huwiyya*' is pretty obviously an abstract noun formed for the pronoun '*hūwa*' (it/that) perhaps in its use to indicate the difference between an Arabic sentence not in the past or future and a simple noun phrase. The etymology of '*anniyya*' is less clear. If one thing is clear it is

[9] Cf. Al-Kindī, *Rasā'il al-Kindī al-Falsafiyya*, ed. M.A.H. Abu Rida (Cairo: Dar al-Fikr al-'Arabi) p. 584.

[10] I suggest this with some trepidation. Alfred Ivry in his study of al-Kindī's *On First Philosophy* suggests al-Kindī is concerned with metaphysics only as a general science of being. Cf. Alfred Ivry, *Al Kindi's Metaphysics* (Albany: State University of New York Press, 1974), pp. 17 ff.

that both are technical terms and that neither means 'existent' in the way that '*kawn*' might be understood to.[11]

By the time of al-Fārābī, the falsafa tradition, which in al-Kindī's time seemed to focus on *Metaphysics* Lambda, had assimilated a larger part of Aristotle's metaphysical texts and had come to more clearly distinguish different directions within the Peri-Platonic movement. Al-Fārābī himself undertook to clarify and extend what he took to be Aristotle's own thinking about being. The Peri-Platonic traditions conflated being and existence but different strands of those traditions did so for different reasons. Unlike Plotinus and much of the Platonic tradition, which had insisted on the creative fertility of thought and held that whatever could be consistently thought was therefore what there was, Aristotle had emphasized the other direction insisting that only what existed or complexes made up of items that existed could be thought. The Stoics, much of the *kalām* tradition, the Arabic Plotinus, and al-Kindī had all taken a different view again, distinguishing between what had being (what could be consistently thought) and what existed. Al-Fārābī returned to Aristotle's way of conceiving matters - though with some novel developments of his own. Beginning it would seem from *Metaphysics* Delta 7 where Aristotle distinguishes four senses of being, al-Fārābī emphasizes two - being as true (into which he collapses being as thought) and a sense of being in which to be is to have an essence (*māhiyya*) describable by a proper scientific demonstration.[12] In the first

[11] Stephen Menn points to al-Fārābī's remark in the *Kitāb al-ḥurūf* that translators chose '*huwiyya'* because '*hūwa'* can be used in Arabic as a pronoun or separation mimicking some aspects of a copula. Cf. Stephen Menn's article, "Al-Fārābī's *Kitāb al-ḥurūf* and His Explanation of the Several Senses of Being," *Arabic Sciences and Philosophy*, vol. 18 (2008) pp. 59–97.

[12] My discussion of Fārābī's conception of being closely follows Stephen Menn's remarkable article "Al-Fārābī's *Kitāb al-ḥurūf* and His Explanation of the Several Senses of Being," *Arabic Sciences and Philosophy*, vol. 18 (2008) pp. 59–97.

of these senses for something to exist (*mawjūd*) is for there to be a true affirmative predication with it as subject. In this sense, existence is a second-order concept, X exists iff there is a concept P such that X falls under P. Thus existence in this sense 'is not a property.' In the second of these two senses, X exists iff X has an essence and so for X to exist is not merely for something else to be qualified in some way or another.[13] To put the matter in al-Fārābī's terminology, for anything that is *mawjūd* in this sense it is so in virtue of a *wajūd* that is its *māhiyya*.

Avicenna can be seen as taking up both a Fārābīan and a Kindian heritage. He credits al-Fārābī's treatise, *On the Aims of Metaphysics*, with showing him how to approach Aristotle's text but he comments on *The Theology of Aristotle,* as well. Avicenna's terminological heritage is complex. In his discussions of existence, he favors the family of words with the *w-j-d* root that had been favored by al-Fārābī but he also deploys the *hūwa* and *anna*/*inna* rooted terminology introduced by the Kindian circle. Avicenna draws a fundamental distinction between 'possible (*mumkin*) existence' and 'necessary (*wājib*) existence.' Something has possible existence if from a description of its essence (*māhiyya*) and either the supposition of its existing or the supposition of its non-existing no contradiction can be derived. Something has necessary existence if considering it alone there is a contradiction in supposing it not to exist. Avicenna draws a further distinction. Everything that actually exists *exists* either because it is necessary of itself (*wājib al-wujūd bi-dhātihi*) or because it is merely possible of itself (*mumkin al-wujūd bi-dhātihi*) it causes these 'somethings' whatever they may be to exist and act and

[13] Thus, to use a recently popular example, a wrinkle in a carpet is in Fārābī's first sense ("That wrinkle is larger than it was yesterday" may be true) but not in his second sense - since a wrinkle is just a way some part of a carpet is configured.

given that they are and do, it necessarily follows that it exists, and so it '*exists*' necessarily through 'another' (*wājib al-wujūd bi-ghayrihi*). What exactly are these 'somethings' to which Avicenna attributes these modal states? In the first instance, at least, they are existing things. Are there also non-existing things? Despite a long tradition which seems to think so it does not seem that he really thinks there are. Avicenna does think that one can consider essences absolutely, prescinding from issues about whether they have possible or necessary existence, but these essences fall into two classes. Either they are, in the case of material objects, general items like 'horseness' which Avicenna seems to think all have some instances, or they are, in the case of immaterial things, all items which eternally exist. There are, no doubt, consistent descriptions which are not instantiated but these are not descriptions of essences. They would thus not pick out beings in the second of al-Fārābī's senses. Moreover, it is not clear that there would be true genuinely affirmative predications with these descriptions in a subject position and so it is not clear that these would pick out beings in his first sense either. In short, we have no reason to think Avicenna thinks there are, in any sense of 'are', non-existent possibles.

What Avicenna does seem to think is that if we consider some non-divine existing object, accounting for its existence will require us to consider things other than itself, while accounting for the *possibility* of its existence will not. Whereas al-Kindī thinks that the *wujūd* whereby a non-divine thing is *mawjūd* is God, the True One, and al-Fārābī thinks that there is no *wujūd* outside a non-divine thing whereby it is *mawjūd*, Avicenna thinks that there is a distinction within a non-divine thing between what it is, its *māhiyya* (perhaps even what it is in particular, its *anniyya*) and its existing (*mawjūd*). The former

ordinary things have of themselves, they latter they owe (eventually) to God.

It is this distinction between two ways of a thing being what it is that later writers find puzzling. Al-Ghazālī claims that the only distinction that can correctly be drawn here is between things whose existence is caused and thing(s) whose existence is uncaused. He claims not to understand what something requiring a cause for its existence could, in my words, 'have of itself.' Neither does Averroes. [14] Both al-Ghazālī and Averroes, though for different reasons, deny the Fārābīan distinction between two senses of 'being' adumbrated above.

Al-Ghazālī's attack is pointed. Avicenna insists that God is absolutely simple but also claims that God is (the) Necessary Existent. Al-Ghazālī asks whether God's being necessary is identical with God's being existent. If not, there is a plurality in God after all. If so why, in the case of a possible existent, is not being possible identical with being existent? If it is, Avicenna loses his distinction between what the possible existent has of itself (its essence) and what it receives from God and, moreover, as al-Ghazālī argues, loses his only means of explaining multiplicity in the world. Al-Ghazālī's conclusion is that only God has existence of itself while everything else is of itself nothing (*baṭilun bi-dhātihi*).

Averroes' defense of 'the philosophers' against al-Ghazālī's attack is in many ways a retrenchment. Avicenna had attempted a unification of central strands of thought

[14] Cf. Al-Ghazālī**,** *The Incoherence of the Philosophers,* trans. Michael Marmura (Provo: Brigham Young University Press, 2002) and Averroes, *Tahāfut al-Tahāfut*, ed. Maurice Bouyges, 3rd ed. (Beirut: Dār al-Mashriq, 1992). On this issue, cf. Stephen Menn, "Metaphysics: God and Being," chapter 6 of *The Cambridge Companion to Medieval Philosophy*, especially pp. 154-160. Menn points to the semantic difference between denominative/paronymous terms and 'absolute' terms. The former involve a relation to some other thing ("Peter is Italian" is true only if Peter bears some relation or other to Italy), the latter simply locate things in a class (as "Peter is human" (on some theories at least) simply locates Peter among the humans).

about being and existence in several different Peri-Platonic traditions. By distinguishing existence (*wujūd*) from possible (*mumkin*) existence, he had been able to distinguish the roles played by a ground of existence from that played by a cause of existence. He was thus able to account for the different senses in which substances and accidents are (where substances have their possible existence from themselves while accidents have it from the substances in which they inhere) while at the same time leaving the bestowal of existence entirely to God. Averroes implicitly conceded that al-Ghazālī's attack showed this to be indefensible. He took a different tack, one centered on denying a distinction between combining the form and matter of a composite object and bringing it into existence. Averroes insisted that these were the same operation. To make something is also to make it what it is. In doing so, he also denied that there could be anything more than a conceptual distinction between essence and existence.

2. God and the cosmos

While the Abrahamic religions and the Peri-Platonic traditions agree (against Epicureans, Manichees, Zoroasterians, and others active in the orbit of Islam) that there is one First item which they are (usually) happy to call God, they do not agree about what it is or about its role in the cosmos.

Within Islam, an issue that arose early was how to reconcile the unity and simplicity of God with the various roles as Creator, Providential Overseer, and Judge, that a natural interpretation of the Qurʾān would have God play. Among the mutakallimūn, the Muʿtazila tradition insisted (as most Christian tradition has also insisted) that God in creating, overseeing and judging are nothing but God. The Ashāʿira tradition, on the other hand, has argued that these attributes of God are in some sense

distinct from God.

The Ashāʿira analysis of the attributes of God is intimately intertwined with an account of predication derived from an earlier Arabic grammatical tradition. On this account, the verbal form of a term derives from (*mushtaqq*) a nominal form so that e.g.) "God is creating" has the deeper logical form, "A creating(ness) is in God." Thus every act presupposes an attribute. This is precisely the analysis that, as we saw above, al-Fārābī rejects in denying that things exist (*mawjūd*) in virtue of an existence (*wujūd*).

The early *falsafa* tradition began in a mileu in which such a debate about the relation of grammatical and logical form was central and al-Kindī is working in a milieu in which the issues the mutakallimūn raise are in the air. His own approach borrows technical terminology (and so concepts) and methods from that tradition as well as styles of argument but is clearly also indebted to the Greek literature with the translation of which he was involved.[15] The issue of how to understand predication of the First was as central in later Greek thought as in the *kalām* tradition. Plotinus had claimed that nothing could be affirmatively said of the One and the Pseudo-Dionysius had argued that God could only be spoken of through a *via negativa*. This approach was congenial to the Muʿtazila analysis of the divine attributes but in open conflict with the Ashāʿira approach. Thus, al-Fārābī's analysis of existence was the throwing down of a gauntlet.

One of the most important attributes of God is as Creator (*al-khāliq*). The mutakallimūn seem to have been unanimous in understanding this creation in time and

[15] In his treatise, *On First Philosophy,* we see both at work. There the style of argument he uses is one very familiar from the *kalām* literature. It proceeds by division. The conclusion to be established is one horn of a disjunction. The other is in turn divided into two disjuncts. One of these is closed by refutation, the other in turn divided and this process proceeds until all the branches save the original conclusion are closed. By this method, al-Kindī sets out to prove that there is a God.

creation out of nothing (*ʿadam*). No Greek school seems to have understood things quite this way. Although there was some ancient disagreement about whether Plato thought the universe to have had a temporal beginning (and perhaps some early effort to understand Aristotle), the overwhelming Greek consensus was that there had neither been a first time nor a state of things in which there were (for example) no planets or stars.

This, of course, was quite compatible with their being a hierarchy of ontological dependence in the universe. At the pinnacle of this hierarchy stood the First, variously identified as the Good, the One, Being Itself, etc. Near the bottom stood plants and inanimate objects. In *Metaphysics* Lambda, Aristotle had suggested that the Prime Mover (and perhaps other celestial items) might be involved in accounts (*logoi*) of what ordinary objects were and he had suggested that the Prime Mover might be or be involved in the final cause of other things. Plotinus had gone further, maintaining that in some fashion, the One accounted for everything else. Somewhere in the tradition this picture became intertwined with astronomy.

A central metaphysical question is the ultimate explanation for there being a universe of the sort we seem to find around us. The best astronomy until well into the 17th century C.E. was one whose rudiments were Platonic and full development Ptolemaic. The universe is conceived as an organized whole (*jumla*). At the center of the universe we find the earth and then in concentric rings around it the moon, the sun, the five planets observable by the naked eye, and the 'fixed' stars. What was salient about these was their regular motion and their apparent stability. Both were thought to require explanation. For Plato, the ultimate source of motion was a soul and after Alexander of Aphrodisias the consensus held that the heavenly bodies were ensouled. The consensus

held too that the cause of the movement of a soul was what Aristotle would have called a final cause. Souls, particularly the elevated souls heavenly bodies would have, were agents and acted for ends. This naturally raised the question for which ends?

Metaphysics Lambda, the central book of the *Metaphysics*, for the early *falsafa* tradition provided an answer. The souls of the heavenly bodies strive to be as much like the Prime Mover as is possible for them. Unlike the Prime Mover, which is an unmoved Mover, the souls of the heavenly bodies are moved but their motion is the most perfect- circular locomotion- and it is the only change which they undergo. So far Aristotle, but there is a question Aristotle did not face- why is it that there are heavenly bodies at all?

The entire Peri-Platonic tradition maintained that unity was more fundamental than multiplicity. The tradition also held that Unity was as, or more, fundamental than Being. Hence, there was a genuine puzzle about how multiplicity could arise. The proposal of the Plotinian wing of the tradition is that it arose from the nature of thought itself. Aristotle had maintained that in thought the intellect (which was merely potential of itself) became the object of thought. For him, the Prime Mover was Thinking Thinking Thinking and thus the unity of the Prime Mover was preserved. However, Aristotle took the multiplicity of the heavens for granted and did not attempt to explain it. For Plotinus, Unity Itself was beyond both Being and Thought. Unity gave rise to the thought of *Nous* and Plotinus concluded that the object of thought was not in every way identical to the subject of thought. In the hands of the *falsafa* tradition, this picture was radically extended and the central figure in this extension seems to have been al-Fārābī.[16]

One issue with which the Peri-Platonic tradition grappled was the status of

[16] Cf. Damien Janos, "Intellect, Substance and Motion in al-Fārābī's Cosmology", Ph. D. dissertation, McGill University 2009.

mathematical objects. In some of his works, Plato had assigned them a status intermediates between that of the Forms and the objects of sense experience. Aristotle, on the other hand, claimed that while they differed from physical objects in account they did not differ from them in being. Proclus, in his *Commentary on Euclid's Elements*, sided with Plato here and al-Kindī seems to have followed him. Al-Fārābī, on the other hand, sided with Aristotle and the *falsafa* tradition after al-Fārābī seems to have for the most part followed him. Perhaps for this reason theorists working in Arabic sought accounts of the cosmos which were at the same time mathematically and physically respectable - and so had to face metaphysical issues about the nature of the heavens and the causes of celestial motion that in the Latin tradition (where astronomy and physics developed as separate sciences) were largely ignored.[17]

Central to the picture was a conception of the structure of the cosmos. Aristotle had argued that certain kinds of causal chains could not be infinite but also argued that the cosmos had always existed and that there had always been the species there now are (with members having roughly the life-span as they now have). Exactly how these claims were to be reconciled was not entirely clear and John Philoponus had argued that they could not be, insisting instead that the cosmos must have had a beginning in time, and must have been created by an eternal being. This immediately raises issues about how an eternal being can act in time and why the cosmos is the particular age it actually is- issues which connect with issues about predestination and will since they seem to involve God's will to create.

[17] For the sharp separation of astronomy and both physics and metaphysics in the Latin tradition, cf. Christe Ann McMenomy, "The Discipline of Astronomy in the Middle Ages," Ph.D. dissertation, UCLA, 1984.

Aristotle had argued in *De Caelo* that to account for the heavenly phenomena one needed to posit either 47 (or 55 - scholars disagree) separate motions and, because each natural mover moves with a single uniform motion, the same number of unmoved movers. There is some evidence that by late antiquity this picture had been simplified to one in which there were eight heavenly spheres- one for each planet and one for the fixed stars. Within each sphere, there would have to be several distinct motions if they were to be circular. The Ptolemaic advances in astronomy made natural the addition of a further outer sphere which provided a single motion to the whole contained system. We thus have the nine spheres which make up the Fārābīan and Avicennan system.

Al-Fārābī began with the principle that something completely one could produce only one effect. Hence from the First, an intellect thinking of itself, as Aristotle had proposed, there could arise only one Second, its Thought, itself an intellect. This Second, however, could have two objects of thought - itself and the First and so at this level multiplicity could appear. From then on, the best available astronomy showed us how things were to go and al-Fārābī seems to have proposed that there were ten such intellects in total- God, a mover for the whole ecliptic, a mover for each of the seven celestial bodies (counting the fixed stars as one), and the Active Intellect. There are many mysteries about exactly how this system works. As al-Fārābī develops it, there is an intellect for each celestial sphere which produces it as a by-product of its thinking. In addition, each sphere carrying a heavenly body is itself ensouled so that for each sphere there are three items - the Intellect, the celestial body, and the soul of the sphere.

In Avicenna, we find the fullest working out of this tradition. Beginning with the Prime Mover, which we can identify with Allāh, he too proposes a scheme of ten

emanated intellects, one corresponding to each of the celestial spheres. The Prime Mover is, as Aristotle says, a thought – and in thinking of itself it gives rise to the first emanated intellect. Each of the other emanated intellects is then is produced by the thought of the previous one. Each of these intellects thinks both of itself and of the First and so has two effects, the second being a celestial sphere which is a living being with a body (for Avicenna apparently a material body) and a soul. There are nine such spheres. For Avicenna, a basic metaphysical distinction is that between substance and accident. Anything which counts as accident is in something else as in a subject. Anything which counts as substance is not. In this sense, certain forms (substantial forms), matter(s) and composites of them all count as substances. God is absolutely simple and if it is correct to speak at all of God as having an essence, existence and essence coincide – God is its own existence. The emanated intellects are composite in that they owe their existence to God and, in the case of all but the first of them, to each other. Whereas God is Necessary Being, everything else is Possible Being in that what it is neither includes nor excludes existence. The emanated intellects exist necessarily but not of themselves. They owe their existence to God and in all cases except the first emanated intellect to other emanated intellects. In virtue of depending on something outside themselves they include potentiality, the principle of which is matter, and so give rise to ensouled bodies.

Al-Fārābī and Avicenna differ somewhat on how these intellects operate but they agree that they produce their effects by thinking. At the core of the cosmology, the *falsafa* tradition develops from its Peri-Platonic heritage the view that thoughts are things and that at the higher levels they are self-subsistent things ultimately responsible for what

else there is. Within the Peri-Platonic traditions, these thoughts had a good claim to be divinities and the heavenly bodies themselves inherited this claim.

Aristotle had argued that the heavenly bodies were material. Proclus had claimed that they were immaterial (*ahylon*). The *falsafa* tradition had to adjudicate and different thinkers went different ways. The divinity of the heavenly bodies was an important feature of late Neo-Platonism. [18] Aristotle had already argued that they must be composed of better stuff than the things of the sublunary world. On the other hand, there are several verses of the Qurʾān which speak of the creation of seven heavens.[19] The Qurʾān speaks also of God's footstool (*kursī*) and throne (*ʿarsh*). If one includes God himself this makes ten cosmological items. The reconciliation of these two pictures may have been an important element in both later *kalām* and later *falsafa*. Obviously no Muslim, no matter how heterodox, could worship the planets as the late Platonists and their successors in Harran did, and the *falsafa* tradition does not. For al-Fārābī, the moon, sun, planets, and stars occupy an intermediary position between the generable and corruptible things of earth and completely immaterial things. They can thus be studied partly in physics and partly in metaphysics. He sometimes speaks of them as a third realm (*ʿālam*).

Within the Aristotelian division of the sciences, it is metaphysics which studies immaterial things. Physics can establish the existence of such things but not their nature. Because the heavenly bodies are bodies they can be studied in physics, albeit a special branch of physics, and their motions can be studied in astronomy, a special branch of

[18] Cf. The story of Proclus worshipping the moon in Marinus' *Life of Proclus* (Yonkers: Platonist Press, 1925) and Simplicius' criticism of Philoponus as a *tikkun* in *Contra Aristotelem, On the Eternity of the World against Aristotle* (*De aeternitate mundi contra Aristotelem*), not extant; fragments reconstr. and trans. C. Wildberg, (London: Duckworth, 1987).
[19] E.g. Qurʾān 2:29,17:44, 23:86, and 65:12.

applied mathematics. They are, however, not merely matter and both what else constitutes them and how they come to move are properly studied in metaphysics.[20]

Within the Fārābīan and the Avicennian schemata, the last of the Emanated Intellects, that which governs the sphere of the moon, occupies a special place. It is identified with the Active Intellect hinted at in Aristotle's *De Anima* and elaborated in the *De Intellectu* attributed to Alexander of Aphrodisias and especially in Themistius' *Paraphrase of the De Anima*. While prior Intellects are each capable of producing one other immaterial Intellect, the Active Intellect cannot produce any immaterial substance but does play two crucial roles. On the one hand, it is the 'Giver of Forms' responsible for each *material* thing being of the kind it is. On the other hand, it is the repository of forms union with which accounts for the human capacity to think. The celestial bodies and all the objects in the sublunar world are composites of matter and form. For Avicenna, substantial forms are powers to produce qualities. Matter, on the other hand, is that in substances which accounts for their capacity to be otherwise or not be at all.

There is a close connection for Avicenna between materiality and corporeality. Unlike, for example, his Andalusian contemporary, Solomon Ibn Gabirol, Avicenna thinks it impossible that there be incorporeal matter. He thinks this because he thinks that

[20] "He [Aristotle] had to investigate also whether the substances of the heavenly bodies consist of a nature or a soul or an intellect, or something else more perfect than these. These matters are beyond the scope of natural theory. For natural theory includes only what is included in the categories; and it has become evident that there are here other instances of being not encompassed by the categories: that is, the Active Intellect and the thing that supplies the heavenly bodies with perpetual circular motion."Al-Fārābī, *Philosophy of Plato and Aristotle*, trans. Muhsin Mahdi (Ithaca: Cornell University Press, 1969), p. 129. Cf. Damien Janos, "Al-Fārābī, Creation Ex Nihilo, and the Cosmological Doctrine of K. Al-Jam' and Jawabat," *The Journal of the American Oriental Society*, Vol. 129, No. 1. p. 58.

matter is always informed and that the kind of form which can be the form of matter is one which is potentially divisible into parts. To be corporeal just is to be a single thing which is divisible into parts. In the case of the celestial bodies the element of which they are made has no contrary and so no substantial change is possible in them. Since division would amount to a substantial change – making two out of one – this entails that while celestial bodies are such that we can conceive of divisions in them and so are extended, they cannot be physically divided and so are ungenerable and incorruptible.

With sublunary substances, things are otherwise. They are composed of elements all of which do have contraries and so they are physically divisible and both generable and corruptible. Moreover, although Avicenna is certainly not an atomist, he does seem to think that each composite body is made up of many simple bodies. The interaction of the many simple substances which are the elemental bodies out of which a composite substance is made produce a uniform composite substance.[21]

For Avicenna, material objects are composites of matter and form and he supposes that individuation of material substances of the same species is due to the matter. This naturally raises the question of how matter is itself individuated. The key to the individuation of matter lies in its three-dimensionality. What accounts for this? Avicenna argues that matter can be understood in two ways, as that which underlies substantial change and as that which is utterly indeterminate. The two conceptions are distinct because all substantial change (as contrasted with creation *ex nihilo* and annihilation) is of bodies and bodies share a common feature; they are all three-

[21] Cf. Abraham Stone, "Simplicius and Avicenna on the Essential Corporeity of Material Substance," *Aspects of Avicenna*, ed. Robert Winovsky, Vol. 9, no. 2 of *Princeton Papers: Interdisciplinary Journal of Middle Eastern Studies* (Princeton: Markus Wiener, 2001) pp. 73-130.

dimensional. Hence no substantial change will replace a three-dimensional object with one that is not (or vice versa). If there were matter that was not three-dimensional then since matter is of itself completely indeterminate it should be possible for the same matter to be that of a body at one time and a non-body at another and so there would be substantial change of non-bodies after all. Thus, even though it is not part of the concept of matter that it is three-dimensional, it is so necessarily.

Avicenna uses this feature of matter to explain how there can be distinct material substances of the same species. He seems to think that because matter is necessarily three-dimensional, whenever a material substance is generated, it is generated in a unique location. Since no two material substances (at least of the same species) share a location, substantial form(s) of the same species in matter differently located are distinct.[22] Even though these very general features of the sublunar world bring us to the very edge of metaphysics, a more detailed discussion is best left to the physicist.

Al-Fārābī and Avicenna share at least the skeleton of a cosmology. They agree that the Movers of the Celestial spheres and the stars and planets themselves proceed in series from the First and that the tenth Mover, the Active Intellect is the 'Giver of Forms.' However, this was not the unanimous view of the *falsafa*. In particular, in his *Long Commentaries* on the *Physics* and the *Metaphysics* and in his *Tahāfut al-Tahāfut* Averroes rejects it. Averroes' rejection of this model seems to correspond with his

[22] Exactly how this feature of Avicenna's thought works I confess I do not understand. Within the Aristotelian scheme location is an accident and accidents are individuated by the substances of which they are accidents. To suppose that these substances are individuated by those very accidents would involve a vicious circle. The thought that substances might be individuated by accidents is not unique to Avicenna. It seems a feature of Stoic thought and is found in Boethius and many early medieval Latin thinkers. Nonetheless, Abelard's critique of it seems to me so obvious and devastating that I do not understand how so many great thinkers have found it so attractive.

acceptance of the view that the First moves the universe as a final and not an efficient cause. The heavens move because they 'desire' the First and substances here below the moon are generated because their causes are moved by 'desire' for the First.

3. Causation

Perhaps the most famous part of the dispute between al-Ghazālī and the *falsafa* is that over whether the universe could (and did) have a beginning in time. Philoponus and the *kalām* traditions had claimed that it could, did, and even must have and al-Kindī agreed. The overwhelming consensus of the Peri-Platonic traditions, joined by al-Fārābī and Avicenna, argued that it could not. Al-Ghazālī joins this debate on the side of the *kalām* traditions and Averroes replies for the *falsafa*.

At the root of this debate lie a number of issues, including the correct understanding of the infinite, which are beyond the scope of our discussion. However, one issue which is metaphysically significant and crucial for the debate is how to understand the related notions of agency and cause. The *kalām* traditions were unanimous that only intelligent beings could be agents, properly speaking, and that being an agent (*fāʿil*) was a necessary condition for being a cause (*sabab*), properly speaking. Al-Ghazālī is speaking for the consensus when he writes that "we say 'agent' is an expression [referring] to one from whom the act proceeds, together with the will to act by way of choice and the knowledge of what is willed."[23] The disagreement between the Muʿtazila and Ashāʿira on this score seems to have been entirely over whether there could, even in principle, be *finite* agents. The Ashāʿira claimed that only God was properly an agent while the Muʿtazila allowed that humans could be the agents of our own choices. Central

[23] Al-Ghazālī, *The Incoherence of the Philosophers*, trans. Michael Marmura (Provo: Brigham Young University Press, 2002), p. 56.

both to what united and what divided the mutakallimūn seems to have been the thought that one cannot *act* unknowingly - that, as we might put it, acting is an intentional context so that to *do* A rather than B requires being aware of what distinguishes A and B. The Ashāʿira seem to have emphasized that only an omniscient being could be fully aware of what would distinguish some action A from everything else and so only an omniscient being could properly act. The Muʿtazila, on the other hand, while agreeing that to act one needs be fully aware of what one does seem to have thought that in the *choice* between A and B one is aware of the difference between A and B and that this is sufficient for being the agent of the choice. To the best of my knowledge the Muʿtazila did not think that finite agents could perform actions other than choices.

The *falsafa* were unanimous that non-intelligent beings and even inanimate beings could be causes and, in the relevant sense, agents. They insisted that the world contained many substances with natures and that it was central to the conception of anything with a nature that it could act and (in the sublunar world at least) be acted upon. This picture is essential to the cosmological scheme outlined in the last section, both grounding the doctrine that a single cause can produce only a single effect and explaining how nonetheless there can be multiplicity in the world.

Aristotle's account of causality was central to the *falsafa* picture. On that account, there are four types of causes, two of them, the formal and material causes, being constituents of the typical effect, the efficient (or agent) cause being always distinct from the effect, and the final cause, being a more complicated matter. Two distinctive features of Aristotle's picture taken up by al-Fārābī and developed by Avicenna after him are 1) that there is an internal, perhaps even a conceptual, connection between the efficient

cause and its effect and 2) that a cause and its effect are simultaneous, the priority of cause to effect being not temporal but, as Aristotle put it, a priority of nature.

For Aristotle and for Avicenna, the paradigmatic cases of efficient causes are healings of patients, buildings of buildings and (for Aristotle himself) sculpting of sculptures. They are all cases of art, not nature, and they all raise issues about what exactly is the cause - and for that matter what exactly is the effect. Aristotle often talks as though the efficient cause of an effect is a substance, perhaps one as characterized by an accident - a doctor or a builder.[24] Properly speaking then doctors heal and builders build. Moreover, the products of these activities are properly characterized as healed (patients) or as built (buildings). Thus while in some sense a bout of laughter may result from a doctor's activity (say if she administers a drug which causes hilarity as a side effect) it is not 'qua doctor' that she produces the laughter while it is 'qua doctor' that she produces the healing. In the central cases, there are conceptual connections among the efficient cause, the activity of the cause, and the effect. The efficient cause (the doctor) is characterized as it is (as doctor) because as such it acts (heals) to produce an effect (the healed patient) which itself may be characterized as the typical result of just that sort of acting. Moreover in such paradigm cases as doctoring the process (of healing/doctoring) itself is guided by the effect. The doctor's doctoring is so called because it is to produce that effect. Thus, we could say that it is as essential to the doctor qua doctor that she doctor (and so heal) to the activity of doctoring that it be done by doctors and to healed patients that they have been produced by doctors doctoring.

[24] Though sometimes it is properly speaking something more abstract-the art of medicine as found in the doctor or that of building as found in the builder.

Given these conceptual connections- and the thesis that all cases of accidental causing are parasitic upon such cases of per se causing- the *falsafa* can plausibly maintain that the central cases of causation are ones in which things act naturally to bring about effects which are the natural products of such acting. Moreover since the causes (e.g. doctors) are characterized in terms of the effects they produce (healed patients) and the processes by which they produce them healings) per se, one kind of per se cause could only produce one kind of effect and one particular cause in one particular set of circumstances only one effect per se. Thus, where effects differ either the cause or the circumstances must differ. Hence, as al-Fārābī and Avicenna conclude, something as unified as The One/Being/First Cause acting in an environment in which its activity is not conditioned by anything else would naturally produce one being/effect. To get multiplicity we need either a distinction within the cause or a distinction within the circumstances in which the cause acts. The unique effects of the First Cause thinks two thoughts because there are two objects to be thought about itself and the First Cause produces two effects- and so it goes.

A second crucial feature of the *falsafa* account of causality is that per se causes are always simultaneous with their effects. Al-Ghazālī attributes to the *falsafa* before him the physical example of a hand stirring water in a bowl. Assuming no void (as the *falsafa* do), the water must move simultaneously with the hand (since otherwise two bodies would occupy the same place at the same time.[25] The example is physical but the point is

[25] "They claim that whoever asserts that the world is posterior to God and God prior to it can mean by it [only one of two things]: [He can mean] that He is prior in essence, not in time, in the way that one is prior to two (which is [a priority] by nature, although it can temporally coexist with it); and like the priority of cause to effect, as with the priority of a person's movement to the movement of [his] shadow that follows him, the hand's movement and the movement of the ring, and the hand's movement in the water and the movement of the water-for all these are

metaphysical: effects are *effects* inasmuch as they are being caused. Once the cause ceases to operate the things which was effected may persist but not inasmuch as it is an effect but inasmuch as it is a thing in its own right. The *falsafa* tradition uses this feature of causality to reconcile the apparent tension between Aristotle's commitment to the eternity of the world and his proof in *Physics* VIII for the existence of a First Cause of motion. Whereas Philoponus and the *kalām* traditions claimed that no series could be actually infinite and so there must have been a first moment of the existence of the world (and al-Kindī agreed), at least Avicenna and the *falsafa* distinguished series of accidentally ordered causes, which they claimed did not produce genuine ordered unities (*jumla*) and so might exceed any number and per se ordered causes which did and so must be finite. In a per se ordered sequence each member of the series involves in its causing all those 'prior' to it and these must form a totality if the conditions are to be present for that member to act.

From the point of view of the mutakallimūn, this entire picture is a chimera depending upon the metaphorical extension of the concepts of agency and cause from their natural home among intelligent choosing beings. As a number of recent writers have emphasized there is reason to think that our concepts of cause and agent are intimately connected with our own sense of ourselves as agents.[26] Even Aristotle, when he seeks to make his conception of nature intuitive, remarks that for something to act naturally is to act *as if* it were the product of art.[27] Considerations of this sort structure al-Ghazālī's

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simultaneous, some being a cause, some an effect." Al-Ghazālī, *The Incoherence of the Philosophers,* trans. Michael Marmura (Provo: Brigham Young University, 2002), p. 30.

[26] E.g. Georg Henrik von Wright, *Explanation and Understanding* (Ithaca: Cornell University Press, 1971).

[27] Cf. *Physics* II ch. 8 199b28-31, "It is absurd to suppose that purpose is not present because we do not observe the agent deliberating. Art does not deliberate. If the ship-building art were in the

critique of the falsafa conception of causation and it is to them that Averroes replies in the 17th Disputation of his *Tahāfut al-Tahāfut*. At the center of al-Ghazālī's critique lies the claim identified above - that an agent (*fāʿil*) properly speaking is one who chooses what it knows for a reason. In so restricting the notion of agent Ghazālī is respecting the original Greek as well as his native Arabic. An *aition* was originally someone who could be held responsible for something and an *aitia* the reason or explanation of why he was responsible.[28] We only metaphorically hold inanimate things like the weather responsible and yet, argues al-Ghazālī, if we extended the notion of agency as the *falsafa* would wish we would have to do so literally. The paradigm cases of the responsible are those who chose to do what they do-knowing 'what' they are doing. Al-Ghazālī's definition of an agent also makes reference to acting for a reason. Like the *falsafa,* al-Ghazālī thinks that doings are for an end. Aristotle himself had stressed that genuine agents act for ends and had claimed that acting for an end does not require knowing the end for which one acts. Al-Ghazālī finds this claim of an immanent teleology in inanimate things preposterous.[29] Al-Ghazālī insists on the intuitive distinction between acts and states. While states might be permanent, acts involve change.[30] God's creating the world is His act and so an event. It therefore could not be permanent and indeed perhaps could only be momentary thereby suggesting the Ashāʿira doctrine of continuous creation.

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wood, it would produce the same results by nature. If, therefore, purpose is present in art, it is present also in nature. The best illustration is a doctor doctoring himself: nature is like that."

[28] Cf. Michael Frede, "The Original Notion of Cause" in his *Essays in Ancient Philosophy* (Minneapolis: University of Minnesota Press, 1987), pp. 125-150, esp. pp.129-130.

[29] The subsequent history of science has vindicated him on this score. Despite repeated efforts to find a teleology in nature without positing intelligent design none has achieved much traction.

[30] There could not be an eternal *hitting* of a baseball precisely because such hitting involves a change from one state to another, cf. Terence Parsons, *Events and the Semantics of English* (Boston:, MIT Press, 1990).

So far I have argued as if the *falsafa* tradition were homogeneous on issues about causality but this is far from being the case. Avicenna follows Aristotle in insisting that everything that is, *when it is*, 'is' necessarily. Among other things this is the ground of his explanation of Divine Providence. God, the Necessary Existent, in being aware of all the causal chains there are is aware of all of their products and so aware of each singular thing and event. This does not of course entail that everything that exists will exist forever. The Intellects that proceed in series from the Necessary Existent (and exist in the timeless state he calls the '*dahr*') will not perish nor will the celestial bodies, but the ordinary things of the sublunary world come and go. Nonetheless, like the Intellects and celestial bodies, they are necessary through their causes - in the sense, that it is necessarily given that if those causes exist, they also do.

The *falsafa* also disagree about the upshot of Aristotle's 'strong' doctrine of per se causes. As Avicenna understands the view, the per se causes of a thing are partially constitutive of what that thing is, its *māhiyya*. It is because the hierarchy of causes 'above' a thing, leading back to the Necessary Existent, is partially constitutive of the thing that by understanding what those causes 'are' the necessary Existent can understand the effects. Given then that the Necessary Existent gives existence to those chains of causes it completely understands the world.

Averroes disagrees on both counts. For him to be necessary is to have no potentiality and existing necessarily entails existing eternally. Thus, he rejects Avicenna's category of things possible in themselves but necessary through another. God and the Movers of the celestial spheres are necessary beings, everything else is merely contingent (*mumkin*). This, he argues is compatible with God being the cause of the universe

because God is the ultimate final cause and a final cause is the cause of the operation of those efficient causes it regulates. The celestial bodies, which Averroes insists to be simple bodies, move as they do because they are motivated by desire ultimately for God and their moving as they do is the necessary expression of their essences. They could not be *without* moving as they do. There is a sense in which the fact that they 'are' is due to God. Below the moon, causes operate as they do and so produce the effects they do because motivated by desire for God. While the efficient cause of an animal being generated may be its male parent, the parent's activity can be traced back to God as a final cause and the ultimate explanation of that generation will require reference to God.

Averroes also disagrees with Avicenna's reading of Aristotle's doctrine of per se causality. As Averroes understands matters to cause a composite sublunar thing (the only kind of thing that can be *brought* into existence) is to inform particular matter. This is in general done by changing things - altering them or moving them around locally. What does this is, in general, no *part* of the resulting thing and no reference need be made to it in defining the thing.

Averroes response to Ghazālī's critique of the earlier *falsafa* doctrine of causality is nuanced. On the one hand, Averroes grants that to understand per se causation as a matter of nature in the way Avicenna did is to eliminate agency. On the other hand, he insists that to reject that there are substances with causal powers of their own is to deny that there are genuine distinct things in the world at all. He insists that it is precisely because there are such genuinely powerful things that God can as a final cause create a providential order and make this the best of all possible worlds.

4. Conclusion

Metaphysics within the orbit of Islam, which at the time of Averroes' death in 1198 C.E. was the most sophisticated in the world, did not die with him. While Averroes had only a modest influence within that orbit, both Avicenna and al-Ghazālī became and to a large extent remain towering figures around whom there has grown up enormous commentary literature and from whom there have developed significant new strands of metaphysics. In that sense, both the *kalām* and the *falsafa* traditions remained (and remain) alive. However, the study of those subsequent developments has hardly begun and will here be passed over in a silence it does not deserve.

The Arabic Reception of Aristotle's Nicomachean Ethics

Josh Michael Hayes

Introduction

Aristotle's *Nicomachean Ethics* remains a foundational text in the history of Western philosophy. It is among the most widely disseminated and influential treatises in the Aristotelian corpus and constitutes the first systematic source for all subsequent ethical inquiry. However, if we are to restrict our evaluation of the *Nicomachean Ethics* to the local and regional tradition of the Western canon, we risk severely invalidating its most significant purpose and function to disclose the essence of the human being *qua* rational animal. Aristotle does not speak about the alleged value of ethics as a domain of inquiry that purportedly transcends the historical and cultural boundaries of the Greek city state (*polis*), yet we shall consider how we might extend his investigation into virtue and happiness into a universal, indeed, global domain. For what is indicated and at least approximated by those Arabic philosophers who receive and interpret the *Nicomachean Ethics* is the possibility that Aristotle's ethics and its interdependence upon the constitutive historical character of the Greek polis might in fact transcend its regional locality so that we might begin to envision how ethics could function globally on a planetary and even on a cosmic level. Aristotle's ethics functions as an overture and provides an orientation towards grounding those principles which constitute the human being qua political animal in such a way that politics or the domain of ethico-political thinking marks the height of all philosophical inquiry and the absolute perfection of the human being *tout court*. Here, al-Fārābī's ethico-political inquiry would thereby exceed even metaphysics as the most crowning achievement of human investigation. As al-Fārābī states in his *Attainment of Happiness*, the science and inquiry of ethics would be oriented by the task to "investigate those intellectual principles and the acts

and states of character with which the human being labors toward this perfection. From this in turn emerges, the science of the human being and political science."[1] Within the Arabic tradition this view is perhaps most widely espoused by al-Fārābī and his treatises dedicated to the philosophies of Plato and Aristotle. As we trace the history of the transmission and reception of the *Nicomachean Ethics*, we must begin by reflecting upon how this local and regional tradition of Platonic and Aristotelian ethico-political inquiry came to constitute the foundation for a uniquely Arabic conception of political science. Al-Fārābī is the first philosopher to concretely elaborate the global necessity of such a conception:

> It consists of knowing the things by which the citizens of cities attain happiness through political association in the measure that innate disposition equips each of them for it. It will become evident to him that political association and the totality that results from the association of citizens in cities correspond to the association of the bodies that constitute the totality of the world. He will come to see in what are included in the totality constituted by the city and the nation the likenesses of what are included in the total world. It is in such a seeing that human perfection would be attained.[2]

In what follows, I will attempt to reconstruct the historical narrative of the transmission of Aristotle's *Nicomachean Ethics* into the Arabic-speaking world in the ninth and tenth centuries. This brief historical reconstruction is by no means exhaustive but merely intends to trace quite broadly the degree to which the transmission and reception of this text transformed the medieval Arabic philosophical tradition. For what is at stake in such a reading is not merely intellectually rehearsing Aristotle's argument presented throughout these texts, but coming to understand how the probing and restless nature of Greek philosophical inquiry comes to be embodied in the Arabic commentators themselves. By continuous reference to the long-standing unity between ethics and politics in the Aristotelian tradition, this essay will seek to present the historical

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[1] *The Attainment of Happiness* (*Tahsil as-Sa `adah*), in *Al Fārābī's Philosophy of Plato and Aristotle*, trans. Muhsin Mahdi (New York: The Free Press of Glencoe, 1962), 23.
[2] Ibid, 24.

foundation for the transmission of Aristotle's ethical treatises, specifically the *Nicomachean Ethics* by turning to the philosophies of al-Kindī, al-Fārābī, Ibn Sina, (Avicenna), and Ibn Rushd (Averroes). I will begin with a brief historical synopsis of this reception before turning to these representative philosophers.

As noted by the wealth of commentary devoted to the Arabic reception of the *Nicomachean Ethics*, especially Anna Akasoy and Alexander Fidora's excellent account of the transmission of the Fez manuscript, *The Arabic Version of the Nicomachean Ethics* (Leiden: Brill, 2005), the Arabic interest in the *Nicomachean Ethics* dates back more than a thousand years. The Arabic commentary on this seminal text is largely attributed to Christian subjects of the Caliphate during the early Abbasid period (750-900 CE). We are fortunate enough to have recovered the Fez manuscript containing the majority of the *Nicomachean Ethics* in Arabic. This is a crucial text given the numerous references made to the *Nicomachean Ethics* most notably by al-Kindī, al-Fārābī, Ibn Bājjah, and others. Although the *Nicomachean Ethics*, *Eudemian Ethics* and *Magna Moralia* are mentioned in their respective biographies of Aristotle, we lack sufficient historical evidence to prove that any of these treatises except the *Nicomachean Ethics* was translated into Arabic. In fact there is only one reference to the translation of the *Nicomachean Ethics* in a commentary by Ibn an-Nadīm in the tenth century.[3] However, with the inclusion of the Fez

[3] In his *Fihrist*, Ibn an-Nadīm refers at only one point throughout his text to the existence of this original translation, "And among the books of Aristotle-copy made from the handwriting of Yahyā b. `Adī, from the catalogue of his books-was the *Book of Ethics* explained by Porphyry, twelve discourses, translated by Ishāq, b. Hunain. And there was with Abū Zakariyā' [sc. Yahyā b. `Adī] in the handwriting of Ishāq b. Hunain a number of discourses with the Commentary of Themistius. They came out in Syriac." Ibn an-Nadīm, *The Fihrist of an-Nadīm. A Tenth Century Survey of Muslim Culture*, trans. Bayard Dodge (Records of Civilization: Sources and Studies, 83) 2 vols., New York/London, 1970.

manuscript dated Sha bān 619/October 1222, the translation can conceivably be dated much earlier to the third/ninth or at least fourth/tenth century. The accuracy of this translation, specifically its capacity for retranslation, is quite impressive and presents us with the most reliable philological basis for the predominant relevance of the *Nicomachean Ethics* to the Arabic philosophical tradition, specifically among al-Kindī, and al-Fārābī, who are most responsible for its historical transmission throughout the centuries.

Al-Kindī

Al-Kindī (185/801-252/866), the first philosopher of the Arabs, speaks only in a precursory manner about ethics, specifically Aristotle's ethical treatises. Al-Kindī does not engage in a systematic investigation of the *Nicomachean Ethics*. However, Al-Kindī does provide an initial glimpse into how Aristotle's ethics first came to be appropriated. The earliest mention of the *Nicomachean Ethics* appears in his *Letter on the Number of Aristotle's Books and What is Needed to Acquire Philosophy* (*Risālah fī kammīyat kutub Aristūtālīs wa-mā yuhtāju ilaihi fī tahsīl al-falsafah*). The date of the composition of the *Risalah* is estimated to be during the caliphate of al-Ma'mūn (198/813-218/833) and appears to be composed earlier than the *Theology of Aristotle* and later than the *Greatest Book on Harmony*. The historical evidence indicating the authenticity of its composition rests upon the dating provided by Ibn Nā`imah, who translated the *Theology of Aristotle* from Syriac in 220/835 for al-Ma'mūn's successor and student of al-Kindī, al-Mu`tasim. The text is divided into five parts beginning with al-Kindī's introductory remarks before proceeding to enumerate the necessary books one must study to become a philosopher. Al-Kindī begins with the *Categories* and then turns to the ethical treatises before treating mathematics and metaphysics as those fields that do not concern physical bodies. After

enumerating those works contained in the *Organon* of Aristotle, al-Kindī first discusses the order of ethics as following from the psychology and metaphysics:

> They are his books on ethics, I mean the ethical qualities and government of the soul, that it may preserve in human virtue and be one with it, which is the aim of man of balanced nature in his present life and his means of salvation in the world to come, for which there is no substitute, no equivalent for its benefit and no wellness with its loss.[4]

Al-Kindī's conspicuous placement of the ethics after the metaphysics indicates that ethics is to be comprehended as the highest mode of human perfection as proceeding from if not exceeding metaphysics. Throughout the *Risālah*, al-Kindī refers to the large book on ethics (*Niqumakhiya*) written to his son, Nicomachus, containing eleven books and another without name, "And among them is another book, less than the number of these discourses (*maqālāt*) [and] resembling the meanings of his book [written] to Nicomachus. He wrote it to one of his brethren."[5] The reference to this lesser known work might indicate al-Kindī's acquaintance with the *Eudemian Ethics*, dedicated to Aristotle's student, Eudemus. Al-Kindī also mentions a third treatise by Aristotle on ethics, "Apart from these three treatises, there are many books by him on minor matters, and letters on various minor matters also."[6] The most distinct possibility might be that al-Kindī is referring to the *Magna Moralia*, since the Arabic tradition consistently speaks of three ethical works of Aristotle, and a lesser version of the *Nicomachean Ethics*. Al Kindī concludes the *Risālah* by expanding his list to include a summary of the aim of the ethical-political books (*fī kutubihi al-khulqīyah as-siyāsīyah*) and mentioning a second book, "As for the aim in his second book, and it is that which is called *Būlītīqī*, i.e. the Statesman (*al-Madanī*), which he wrote to one of his brethren, it deals with the like of what he said in the first [book]. He

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[4] Ed. by Muhammad `Abd al-Hādī Abū Rīdah, *Rasā'il al-Kindī al-falsafiyah*, 2 vols., Cairo 1369/1950-1372//1953, vol. 1, 363-384

[5] Al-Kindī, *Rasā'il*, op.cit, vol. 1, 369.

[6] Al-Kindī, *Rasā'il*, op.cit, vol. 1, 369.

spoke in it more of political government. Some of its discourses are exactly the same as some of the discourses of the first book."[7] While this might appear to be an oblique reference to a purported lost treatise by Aristotle of Platonic influence, the contemporary scholarly consensus reached by Asakoy, Fidora, and Gonzalez-Palencia is that al-Kindī is likely referring to Aristotle's *Politics.* However, there remains a longstanding debate about the historical plausibility of the transmission of this text into Arabic.[8]

Al-Fārābī

Similar to al-Kindī, al-Fārābī (circa 260/874-339/950) enumerates the books of Aristotle, in his *Letter on the Necessary Preliminaries before the Study of Philosophy* (*Risālah fimā yanbaghī an yuqaddama qabl ta`allum al-falsafah*), "As for the books from which there are learned the things which are put into operation in philosophy, from some of them is learned improvement of morals, from others, the rule of cities, and from the others, the rule of the household."[9] In a rather peculiar manner, al-Fārābī does not explicitly cite the *Nicomachean Ethics*. One would expect al-Fārābī to provide an explicit reference to the text in his works, especially his *Philosophy of*

[7] Al-Kindī, *Rasā'il*, op.cit, vol. 1, 369.

[8] The scholarly debate entertains the possibility that al-Kindī is referring to either Aristotle's *Politics* or Plato's *Politicus*. My reconstruction of this debate follows Anna A. Akasoy and Alexander Fidora's masterful account of the transmission of the Fez manuscript, *The Arabic Version of the Nicomachean Ethics* (Leiden: Brill, 2005). Akasoy and Fidora suggest that al-Kindī identifies the second book with either the *Politicus*, Plato's *Statesman*, as supported by the identification of Būlītīqī with al-Madanī, cf. *Fusūl al-madanī*, the alternative title of al-Fārābī's *Kitāb al-fusūl almuntaza`ah*. (Douglas M. Dunlop in al-Fārābī, *Fusūl al-madanī* [*Aphorisms of the Statesman*], ed. and trans. Douglas M. Dunlop (University of Cambridge Oriental Publications 5, 1961), 17-18; or Aristotle's *Politics* in al-Fārābī's *Kitāb ihsā' al-`ulūm*, ed. Angel Gonzalez Palencia, (Madrid/Granada: 1953), 96. The *Kitāb* is identified with *Kitāb as-siyāsah* of Aristotle, i.e., the *Politics*.

[9] Cf. *Letter on the Necessary Preliminaries before the Study of Philosophy* (*Risālah fimā yanbaghī an yuqaddama qabl ta`allum al-falsafah*)), Jaap Mansfeld, *Prolegomena. Questions to be Settled before the Study of an Author* (Leiden: Brill, 1994), 28.

Aristotle (*Falsafat Aristūtālīs*) However, the *Philosophy of Aristotle* does not stand independently on its own but consists of the third and final part of the *Attainment of Happiness* (*Kitāb tahsīl as-sa`ādah*) following from the second part, the *Philosophy of Plato* (*Falsafat Aflātūn*). In the *Philosophy of Aristotle*, al-Fārābī enumerates the order of Aristotle's treatises, but neglects to mention Aristotle's ethico-political treatises, to include the *Nicomachean Ethics* (*Kitāb Niqūmākhiyā*) and the *Book of Ethics* (*Kitab al-akhlāq*). This omission is especially relevant given that al-Kindī and others during his period, especially al-Ya`qūbī and Ibn an-Nadīm commonly refer to the *Nicomachean Ethics* as following after the *Metaphysics*. Although a lesser known commentator of the same period, Ibn Abī `Usaibi`ah cites al-Fārābī's *Philosophy of Aristotle* as being incomplete (*makhrūm al-ākhir*), the account provided by Qādī Sā`id (460/1068) indicates that the *Philosophy of Aristotle* concludes with the first part of the *Metaphysics*. If this is the case, why did al-Fārābī neglect to consider Aristotle's ethico-political treatises as belonging to philosophical inquiry? In his *Philosophy of Aristotle*, theoretical philosophy, including logic and metaphysics, remains paramount while ethics remains distinct from first philosophy. However, it remains quite historically plausible that al-Fārābī was not yet acquainted with Aristotle's ethical writings. While al-Fārābī wrote either a complete commentary on the *Nicomachean Ethics* or at least a partial commentary on the first part, the work as a whole is lost. The evidence indicating the existence of such a work first appears in his *Harmony of Plato and Aristotle*. After dismissing those commentators who claim that there is a relevant difference between Plato and Aristotle on the issue of moral habits, al-Fārābī concludes:

> In truth, the matter is not as they presume because in his book known as *Nīqūmākhiyā',* Aristotle speaks only about political laws, as we have explained in several places of our commentary on that book. Even had he also discussed moral habits, as Porphyry and many commentators after

him said, then his discussion would have been about moral laws- and a legal discussion is always general and absolute, without reference to anything else.[10]

We can only surmise that al-Fārābī is defending Aristotle's discussion of the moral habits in *Nicomachean Ethics* II.1 by indirectly referring to *Republic* 7.518d-e, where Socrates argues that ordinary virtues are produced by habituation. The acquisition of moral virtues by habituation implies that they are liable to change and transformation and thereby can only be judged from a higher standard of moral laws that are always universal and unconditional. Subsequent references to the lost commentary are provided by Ibn Bājjah, Ibn Tufail, Ibn Rushd, and Maimonides.[11]

Al-Fārābī's appropriation of the *Nicomachean Ethics* is most apparent in his *Harmony of Plato and Aristotle* (*Kitāb al-jam baina ra'yai al-hakīmain Aflātūn al-ilāhī wa-Aristūtālīs*) divided into thirteen chapters that respectively consider the proof of the existence of the First Creator, the causes existing due to the First Creator, the existence of soul and intellect, and recompense for good and evil actions. The treatise is also indebted to the influence of Porphyry

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[10] *The Arabic Version of the Nicomachean Ethics* (Leiden: Brill, 2005), 17; trans. 27 and Al-Fārābī, The *Political Writings: Selected Aphorisms and Other Texts*, trans. Charles E. Butterworth (New York: Cornell University Press, 2001), 148-149. Several lesser known commentators also deserve careful scrutiny, including al-Qiftī's *History of the Sages* (*Ta'rīkh al-hukamā*), who includes al-Fārābī's *Book of Moral Habits* (*Kitāb al-akhlāq*). Cf. J. Lippert, ed. (Leipzig: Dietrich'sche Verlagsbuchhanglung, 1903), 279; Ibn Abi `Usaybi`ah, *Sources of information about the classes of physicians* (*`Uyūn al-anbā' fi-tabaqāt al-atibbā'*), ed. A Muller (Konigsberg: 1884), vol. 2, 138, and Ibn an-Nadīm's *Catalogue* (*Kitāb al Fihrist*), (Cairo: Matba'at al-Istiqama, n.d.), 382.

[11] Abū Nasr [al-Fārābī] said in the first part of his commentary on the *Nicomachean Ethics*: "As regards those who have the power to make their souls pass away from ethical quality to ethical quality, they are those to whom Plato said that God's care for them is greater." Moses Maimonides, *Dalālat al-hā'irīn*, ed. and trans. Salomon Munk, 3 vols., Paris 1856-1866 (reprinted Osnabruck 1964), III, 43, 96a. trans. Moses Maimonides, *The Guide of the Perplexed*, trans. Shlomo Pines (Chicago: University of Chicago, 1963), 476.

who also wrote a manuscript of the same title.[12] Al-Fārābī begins the treatise in typical Aristotelian fashion by beginning with the opinions of those commentators who claim that there is a disagreement between Plato and Aristotle regarding whether or not the world is generated or eternal. After invoking the cosmological argument, al-Fārābī shifts the debate about their disagreement away from the arguments of Plato and Aristotle and unto the commentators themselves. Al-Fārābī's most sustained account of the *Nicomachean Ethics* is conspicuously situated between a chapter on vision and a chapter on learning and recollection perhaps to reflect upon those commentators who pretend to be philosophers. Al-Fārābī indicts those commentators who literally fail to see the apparent agreement between Plato and Aristotle since they remain so intractably mired in the authority of their own arguments that they often fall prey to equivocation. Therefore, it is necessary that the true or genuine philosopher be virtuously disposed to correctly discern the beliefs and arguments of his predecessors without falsification, prejudice, or contention. Here, al-Fārābī's rhetorical strategy deserves careful investigation since the indictment of his detractors functions as the cause for turning to the *Nicomachean Ethics* as a moral lesson. At the outset of chapter nine, al-Fārābī discusses Aristotle's treatment of the moral habits of the soul (*akhlāq an-nafs*) and their universal acquisition according to the capacities of the human being, "Aristotle in the *Nicomachean Ethics* (*Kitāb Nīqūmākhiyā*) makes clear that all moral habits are habits, that they undergo change, that none of them is by nature, and that a

[12] Akasoy and Fidora assume that Arabic version of the *Nicomachean Ethics* in eleven books in the Fez manuscript is the same as the work in twelve books mentioned by Ibn an-Nadīm as Aristotle's *Kitāb al-aklāq* commented upon by Porphyry. With the exception of Ibn-an-Nadīm in the *Fihrist* and al-Qifti, there is only minor attention devoted to the Arabic sources of Porphyry's commentary. Only al-Fārābī directly cites the influence of Porphyry and many others before him as commenting on the *Nicomachean Ethics*. Cf. Al-Fārābī, *Kitāb al-jam` bain al-hakīmain Aflātūn wa-Aristū*, *Philosophische Abhandlungen*, 17; transl. 27, cf. Abu 'Ali Ahmad b. M Miskawaih, *Tahdhīb al-akhlāq*, ed. Qustantin Zuraiq (Beirut: 1966), 76 and 229.

human being is capable of moving from one to another by habituation (*Aristū yasrahu fi kitāb Nīqūmākhiyā anna 'l akhlāq kullahā `ādāt tataghaiyaru wa-annahu laisa shai' minhā bi t-tab `wa-anna `l-insān yumkinuhu an yantaquila min kull wāhid ilā ghairihi bi l-i`tiyād wa'd-durbah*)."[13] However, while al-Fārābī considers the interconnection between ethics and politics by retrieving Plato's discussion of the constitution of various political regimes, al-Fārābī also turns to an account of Aristotle's moral habits necessary for those who are to bring about and found such regimes by explicitly focusing upon those best suited to acquire the requisite moral habits:

> Aristotle does not deny that for some people and some individuals it is easier to transfer from one moral habit to another and for others it is harder, as he has explicitly declared in his book known as the 'little *Nīqūmākhiyā*.' He enumerated the reasons for the difficultly and ease of transferring from one moral habit to another-how many there are, what they are, how each of them reasons [functions], and what facilitates or impedes them.[14]

While al-Fārābī clearly interprets Aristotle's *Nicomachean Ethics* as prolegomena to the *Republic*, a manual for the training of the founders and rulers of these regimes, the most relevant difference between both passages obviously concerns al-Fārābī's reference to the *Nīqūmākhiyā* and *little Nīqūmākhiyā* since al-Fārābī also refers to the '*little Nīqūmākhiyā*' at a later point of the same treatise, "And Aristotle has mentioned in his "Book to Young Nicomachus about Politics" (*little Nīqūmākhiyā*) something similar to what is explained by Plato."[15] The historical

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[13] Al-Fārābī, *Philosophische Abhandlungen aus Londener, Leidener und Berliner Handschriften*, ed. Friedrich Dieterici (Leiden: 1890) (Frankfurt am Main: 1999), 16. trans: al-Fārābī, *Philosophische Abhandlungen*, 27.

[14] Al-Fārābī, *The Political Writings: Selected Aphorisms and Other Texts*, trans. Charles E. Butterworth (New York: Cornell University Press, 2001), 148-149.

[15] Ibid, 142-143. Butterworth notes that the language is 'admittingly strange' (*Kitābuh ilā Nīqūmākhus al-Saghīr fī al-Siyāsa*). Both Butterworth and Dieterici (al Farabi, *Philosophische Abhandlungen*, 208) indicate this reference corresponds to *Nicomachean Ethics* V. 1-9, esp. 3.1131b16-17, 4.1132b18-19, 9.1136b15-29, and 9.113727-30. Both 'Abd al-Rahmān Badawī and Sā'id al-Andalusī claim that this *Nīqūmākhus al-Saghīr* is distinct from either the

possibility supported by the Neoplatonists and al-Kindī is to treat the little '*Nicomachean Ethics*' as addressed to Nicomachus, the son, the greater *Nicomachean Ethics* as addressed to Nicomachus, the father, and the *Eudemian Ethics* addressed to Aristotle's student, Eudemus. Clearly, all three of Aristotle's ethical treatises, the *Nicomachean Ethics*, *Eudemian Ethics*, and *Magna Moralia* are implicated. However, some scholars identify the little *Nicomachean Ethics*' with the *Magna Moralia*, given that the *Magna Moralia* is a smaller book than the *Nicomachean Ethics*, while other scholars claim that the 'little *Nīqūmākhiyā'* indeed stands for the *Nicomahean Ethics*.[16] Nevertheless, why should the larger *Nicomachean Ethics* be referred to as the smaller? Here, I shall concur with the most practical conclusion reached by Henry Jackson that "the *Magna Moralia* is less than half the length of the *Nicomachean Ethics*, each of the two books of the *Magna Moralia* is considerably larger than any of the ten books of the *Nicomachean Ethics*, and assuming that in both works each book formed a single roll, the two rolls would evidently have been the larger, whence the name. We thus have good ground to identify the 'little *Nīqūmākhiyā*' with the *Nicomachean Ethics.*"[17] Jackson's claim to identify both texts is also corroborated by al-Fārābī in the *Harmony of Plato and Aristotle* that some people are to pass from one moral habit to another moral habit more easily than others as stated in the '*little*

Nicomachean Ethics or the *Eudemian Ethics*; see *al-Akhlāq*, *Ta'līf Aristūtālīs Tarjamat Ishāq Ibn Hunayn*, ed. 'Abd al-Rahmān Badawī (Kuwait: Wikālat al Matbū`āt, 1979), 22-25.

[16] Akasoy and Fidora admit this paradox, "Why should the substantially larger *Nicomachean Ethics* be called *tā mikrā Nicomāchia* and the smaller work is called *tā megāla Nicomāchia* (*Magna Moralia*)?", 14-15. Cf. Adolf Stahr in William Smith (ed.) *Dictionary of Greek and Roman Biography and Mythology* I [1844], 317-344, esp. 330) and Jaap Mansfeld, *Prolegomena Mathematica. From Apollonius of Perga to the Late Neoplatonism*. *With an Appendix on Pappus and the History of Platonism* (Leiden: Brill, 1998) 18 (n.54), 20, 124-125 (n.67).

[17] Akasoy and Fidora cite Henry Jackson's claim as corresponding to the commentary of G. Cyril Armstrong in Aristotle, *Magna Moralia* (with *Metaphysics,* X-XIV, and *Oeconomica*), ed. and trans. G. Cyril Armstrong (London: 1958), 427-428.

Nīqūmākhiyā' and Maimonides who cites a similar passage taken from al-Fārābī's own commentary on the *Nicomachean Ethics*.[18]

Al-Fārābī also speaks quite extensively of the *Nicomachean Ethics* in his work, *On the Meanings of Intellect* (*Maqālah fi ma`ānī a1-`aql*) where the sixth treatise of the *Book of Ethics* (*Kitāb al akhlāq*) is mentioned, especially with regard to intellect/`*aql* (*nous*) and practical wisdom/*mutal`aqqil* (*phronesis*).[19] However, since a large part of the Fez manuscript is missing a reliable textual comparison cannot be provided. While we are unfortunately limited by the extant historical sources available to us from al-Fārābī, we might conclude our brief survey of al-Fārābī's interpretation of the *Nicomachean Ethics* by emphasizing the often neglected prominence of his hermeneutical method. As the 'Second Master' (*secundus magister*), al-Fārābī marks a decisive turning point for the inauguration of a uniquely Arabic political philosophy.[20]

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[18] Moses Maimonides, *Dalālat al-hā'irīn*, ed. and trans. Salmon Munk, 3 vols. (Paris: 1856-1866) (reprinted Osnabruck: 1964), III, 43, 96a. Moses Maimonides, *The Guide for the Perplexed*, trans. Shlomo Pines (Chicago: University of Chicago Press, 1963), 571-572.

[19] Al-Fārābī, *Philosophische Abhandlungen*, ed. Friedrich Dieterici (Leiden: 1890) (reprinted Frankfurt am Main: 1999), 39-41; and 61, 64, 65.

[20] Ibn Sā`id' al-Andalusī's *Book of the Categories of Nations* (*Kitāb tabaqāt al-umam*) accounts for the ethical works of Aristotle, "i.e., as for the books which are on the actions of philosophy [practical philosophy], some of them are on the improvement of morals and others on government. As for those which are on the improvement of morals, they are his large book which he wrote to his son, his small book which he wrote to his son also and a book called *Udhimiya* [*Eudemian Ethics*]. As for those which are on the government, some of them are on the government of cities and some of them are on the government of the household." Ibn Sā`id al-Andalusī, *Kitāb tabaqāt al-umam* (*Les catēgories des nations*), ed. Louis Cheikho, Beirut, 1912, 25-26; trans. Regis Blanchere, *Livre des catēgories des nations*, Paris, 1935, 66. Ibn Sā`id is indebted to al-Fārābī since Ibn Sā`id in his *Book of the Categories of the Nations* and al-Fārābī in the *Risālah* present the same account of the seven schools of philosophy among the Greeks. The question remains regarding the translation present to Ibn Sā`id. It is surmised by Akasoy and Fidora that the primary source is Hunain b. Ishāq whom al-Fārābī is also indebted to for the translation of Aristotle, "Hunain b. Ishaq's information goes back to a Greek introduction to

Al-Fārābī presents us with the most robust kind of scholarly syncretism when interpreting the *Nicomachean Ethics* as informed by his own commentaries devoted to Plato, particularly the *Republic* and *Laws*.[21] The lack of availability of Aristotle's *Politics* to the Arabic world

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Aristotle used by Ammonius, Philophonus, Simplicius, and others in Late Antiquity. See Leendert G. Westernik, *Anonymous Prolegomena to Platonic Philosophy* (Amsterdam: 1962), XXVff., who gives an analysis of the contents of this introduction" *The Arabic Version of the Nicomachean Ethics* (Leiden: Brill, 2005), 34. n. 140.

[21] Ibn Bājjah, the Spanish philosopher, b.1138, refers extensively to the *Nicomachean Ethics* in eleven books, "i.e. it is clear that in the virtuous perfect state every man is given the best that he is ready for [or adapted to] and that all its opinions are true […] and that its actions alone are absolutely good […]. These matters have been summarized in the *Nicomachean Ethics*." Ibn Bājjah, *Rasa'il Ibn Bājjah al-ilāhīya* (*Opera Metaphysica*), ed. Majid Fakhry (Beirut: 1968), 41-42. Various excerpts from Ibn Bājjah correspond with the *Eudemian Ethics*. While no evidence of an Arabic translation of the *Eudemian Ethics* or the *Magna Moralia* exists, these works were known to the Arabs, perhaps through the influence of al-Fārābī 's commentary. It is clear that Ibn Bājjah was familiar with al-Fārābī's commentary since he addresses his predecessors: "i.e., more certain than this and the most essential, as well as the pleasantest and most desirable thing for me, is to inform you of the greatest matter that I have come to know, the description of the end to which nature in advance, attains. This has been described and described at length by my predecessors. One of those who have described it and done so repeatedly is Abu-Nasr [al-Fārābī], whose expertise in the subject is recognized" *Rasa'il Ibn Bājjah al-ilāhīya,* 42-43. Ibn Tufail (561/1185-1186), the author of *The Autodidactic Philosopher* or *Haiy ibn Yaqzān*, also mentions the influence of al-Fārābī's commentary on the *Nicomachean Ethics*, "Then he (al-Fārābī) described in the commentary of the *Book of Ethics* (*Kitāb al-akhlāq*) something of the nature of man's happiness and that it is only in this life and in this abode. Then immediately after this he declared: And everything that is mentioned apart from this is nonsense and old wives tales. This makes all men despair of the mercy of God and puts good and bad on one level." Ibn Tufail, *Philosophus Autodidactus or Haiy ibn Yaqzān*, trans. Simon Ockley (London: 1708) (reprinted Cairo: 1905), 12. Moses Maimonides (1135-1204) is another author who extensively used the Arabic version of the *Nicomachean Ethics*: "i.e., Aristotle mentioned in the Ninth of the Ethics that this was the well known practice in the religions of old. He said, in the actual words of the text: The ancient sacrifices and assemblies among them were after the gathering of the fruits, as if they were offerings for the holiday. This is his actual text" Moses Maimonides, *Dalālat al-hā'irīn*, ed. and trans. Salamon Munk, 3 vols., (Paris: 1856-1866) (reprinted Osnabruck: 1964), III, 43, 96a. Moses Maimonides, *The Guide of the Perplexed* (*Dalālat al-hā'irīn*), trans. Shlomo Pines, Chicago 1963, 571-572. This passage is corroborated with NE VIII, 9.5. The *Guide for the Perplexed* refers to the Ninth Book of the *Ethics* concerned with the virtue of friendship. Maimonides also returns to al-Fārābī's commentary on the *Nicomachean Ethics*, now widely disseminated among his successors, "i.e. Abu Nasr [al-Fārābī] said in the first part of his *Commentary on the Nicomachean Ethics*: As regards those who have the power to make their souls pass from ethical quality to ethical quality, they are those of whom Plato said

necessitates that al-Fārābī read Plato's *Republic* as conclusion to Aristotle's ethics.[22] This inversion is presented most extensively in al-Fārābī's commentary on Plato's *Republic* and *Laws* as a rejoinder to his commentary on the *Nicomachean Ethics*. al-Fārābī's insight into this conjunction between Platonic political philosophy and Aristotle's ethics becomes even more pronounced in the *Selected Aphorisms, Attainment of Happiness*, and *Harmony of Plato and Aristotle* where the pagan philosophers are presented with such a degree of convergence that an explicit rhetorical strategy emerges for the sake of reaching a legislative consensus regarding the best political regime guided by the realization of human excellence (*arête*).[23] Such a regime first

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that God's care for them is greater" *Dalālat al-hā'irīn*, Vol. III, 18, 38b-39a; trans. 476. There is a consistent thematization of the passage from ethical qualities to virtue also treated by al-Fārābī, and previously cited by Porphyry's *Commentary on Ethics*.

[22] With regard to al-Fārābī's argument for the irreducible harmony between Plato and Aristotle, especially the discussion of moral habits and moral virtues as a propadeutic to the constitution of political regimes in Plato's *Republic*, see Al-Fārābī's *Attainment of Happiness*, ed. and trans. Muhsin Mahdi in *Alfarabi's Philosophy of Plato and Aristotle* (New York: The Free Press of Glencoe, 1962), 13-50; and Claudia Baracchi's treatment of this theme in the subsequent chapter of this volume, "The Shining and the Hidden: Notes on Politics and Solitude from the 'Greek Prophets' to al-Farabi."

[23] Al-'Āmirī, a contemporary of al-Fārābī, known for his *Book of Happiness and Making Happy* (*Kitāb as-sa`ādah wa'l-is`ād*), refers extensively to Aristotle and specifically the *Nicomachean Ethics* once by name, "i.e., Aristotle said in the *Nicomachean Ethics* in the chapter on the magnanimous man that there is no distinction at all between an investigator investigating the state of character and investigating the man who has it" Al-'Āmirī, *Kitāb as-sa`ādah wa'l-is`ād*, ed. Mojtaba Minovi (University of Tehran Publications; 435/ The Mahdavi Fund Series; 5), Wiesbaden 1377/1951, 200-201. While Aristotle's Greek is translated quite differently in the Fez manuscript, al-'Āmirī freely quotes Aristotle by memory. Al-'Āmirī's *Kitāb* also cites Porphyry's *Commentary on the Nicomachean Ethics*, "Porphyry said: "Happiness is simply a man's perfecting his form, and man's perfection, in so far as he is a man, is in voluntary actions, and his perfection, in so far as he is an angel and an intelligence, is in speculation, and each of the two perfections is complete in each of the two subjects, and if one be compared with the other, it the human perfection which is defective" Al-'Āmirī, *Kitāb as-sa`ādah wa'l-is`ād*, ed. Mojtaba Minovi, 5-6. If we conclude that al-'Āmirī possessed the *Nicomachean Ethics* and Porphyry's commentary, another Arabic commentator Abū 'Alī-Ahmad presents a similar account of Porphyry's influence. Abū 'Alī-Ahmad (b. Muhammad Miskawaih) *Book of the Rectification of Morals* (*Kitāb tahdhīb al akhlāq*) explicitly refers to the *Nicomachean Ethics, the Magna Moralia* and the commentary by Porphyry, "i.e., the good according as Aristotle divided

requires a reorientation of the faculties of the soul if the philosopher king is to assume the role of the prophet legislator responsible for uniting the divine law above with the citizens below.[24]

Ibn Rushd/Averroes

Ibn Rushd's (Averroes) (520/1126-595/1198) commentary on the *Nicomachean Ethics* is lost in Arabic but survives in Hebrew and Latin translation. While Ibn Rushd remarks in his 10 Books of the *Middle Commentary* that he had only four books but later received the complete work from his friend Abū `Amr b. Martin, the Latin translation of the commentary is 10 Books as opposed to the 11 Books of the Fez manuscript. Why the Latin translation of Ibn Rushd's commentary on the *Nicomachean Ethics* survives in 10 Books is open to speculation. Akasoy and Fidora conjecture that none of the quotations from the original Arabic of the Commentary

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it, and Porphyry and others reported it on his authority, is as follows. He said: Some good things are honorable, some are commendable, some are potentially so" Miskawaih, *Tahdhīb al-akhlāq*, ed. Qustantīn Zuraiq (Beirut: 1966), 76. Cf. Porphyry, *Porphyrii philosophi fragmenta*, ed. Andrew Smith, fragmenta arabica, David Wasserstein interpretante, Stuttgart 1993, 166ff.

[24] Ibn Sīnā (370/980-478/1037) does not mention the *Nicomachean Ethics*. However, in his *On Joy and Happiness* (*Fī l-bahjah wa's sa`ādah*), Ibn Sīnā refers to the magnanimous man (*kabīr an-nafs*) and the mature philosopher (*`ārif*) who coincides with the magnanimous man. Ibn-Sīnā, *Kitāb al-ishārāt wa't-tanbīhāt*, ed. Jacques Forget (Leiden; 1892), 190. *Livre des directives et remarques*, trans. Amēlie-Marie Goichon, (Beirut/Paris: 1951), 468. Although al-Fārābī subscribes to the distinction between theoretical and practical wisdom as represented by the roles of the philosopher and the legislator in Platonic-Aristotelian corpus, this distinction is questioned in Ibn Sīnā's *Shifa* where the *Politics* serves an 'ethical' culmination to *Metaphysics*. Throughout the *Shifa*, the faculties for knowledge; namely sensation, imagination, and reason interact for the sake of political deliberation? Does Ibn Sīnā through his inclusion of the ethical realm present an opportunity to reconceive the task of philosophy as not merely an individual enterprise but an activity to be undertaken on a cosmic scale? Ibn Sīnā's transition to the political as the culmination of the metaphysical is appropriated by Ibn Rushd (Averroes) in his own commentary on the *Nicomachean Ethics* where a legal framework is established for ethico-political discourse of Islamic law. Cf. Ibn Rushd, Averroes' *Middle Commentary on Aristotle's Nicomachean Ethics in the Hebrew Version of Samuel ben Judah*, ed. Lawrence Berman, Jerusalem, 1999.

are found in the margins including the 'Seventh Book,' therefore Ibn Rushd decided to drop this book from the Commentary.[25] However, Ibn-Rushd quite problematically attributes to al-Fārābī the claim that the original Arabic version of the Commentary is 10 Books since al-Fārābī's commentary of the *Nicomachean Ethics* disseminated into the hands of the predecessors and contemporaries of Ibn Rushd (Ibn Bājjah, Ibn Tuffail and Maimonides) is said to include 11 Books. Why did his predecessors and contemporaries not accept this claim? Perhaps Ibn Rushd was not the first to reject the Seventh Book but was following al-Fārābī. For al-Fārābī claims in the Hebrew translation of the Commentary that the number of books is shown to be ten since each book ends with the beginning of the next book.[26] However, this is not the case with the Seventh Book which lacks connecting words at the beginning and the end and therefore does not rightfully belong in the *Nicomachean Ethics*. Yet, the manuscripts from succeeding generations were not aware of this discovery since their manuscripts of the *Nicomachean Ethics* did not always show the connecting words between the books repeatedly emphasized by al-Fārābī. The 11 Book version of the *Nicomachean Ethics* is used by Ibn Rushd and his successors.

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[25] The rather mysterious exclusion of the 'Seventh Book' is attributed to Ibn Rushd by Akasoy and Fidora, "..of the thirty or so quotations from the original Arabic of the Commentary found in the margins of the Fez manuscript, none is from the 'Seventh Book', which has simply been dropped. This calls for explanation, and since we have hitherto had no mention of an Arabic author of the *Nicomachean Ethics* in 10 Books, it is natural to think that Ibn Rushd himself has for the first time rejected the 'Seventh Book' of the Arabic *Nicomachean Ethics* as no integral part of it" (Op cit., 50-51).

[26] See Lawrence V. Berman, "Ibn Rushd's *Middle Commentary on the Nicomachean Ethics* in Medieval Hebrew Literature", Jean Jolivet (ed.), *Multiple Averroes: Actes du Colloque International oraganise a l occasion du 850e anniversaire de la naissance d Averroes, Paris 20-23 septembre 1976* (Paris; 1978), 287-321, esp. 308, and Dominique Salman, "The Medieval Latin Translations of Alfarabi's Works", in *The New Scholasticism* 13 (1939), 254-261, esp. 250.

There is a considerable debate about the inclusion of the Seventh Book into the Arabic version of the *Nicomachean Ethics*.[27] Why would such a book be included and transmitted down through the centuries? The subject matter of Book VII of the *Nicomachean Ethics* is the ethical virtues and vices previously discussed in Books III-V dealing with courage, temperance, liberality, friendship, magnanimity, and justice. The text is not written by Aristotle since it contains numerous Arabic references to Ibn `Aus (1,3) Sā'ūs (6,9), Banū `Udhra, and the Arabic poets (3,5) as well as occasional references to Christians (*al-Masīhīyah*) as sufficient evidence to conclude that it was written at a later date:

> i.e. the legislator in all this wished to rectify and to equalize between the man who falls short and the man who has an excess by what the one exceeds and is defective [respectively]. It seems that the Christians in this do not do well and that is ludicrous, for they assert that he who is beaten with whips has more good. It does not appear so to the legislator, because the man has more evil, which means that he has less [good].[28]

One possibility is that this passage is attributed to Porphyry who displayed some animus against the Christians in a treatise now lost. Akasoy and Fidora confirm his authorship based on a notice in the *Fihrist* of an Arabic translation of the *Ethics* with a commentary by Porphyry in 12 books. This is the most likely candidate for the Greek source of the Seventh Book in the Fez manuscript.[29] Porphyry as the most probable author would indicate how the text is clearly Aristotelian as reference is made to the exoteric discourses of Aristotle:

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[27] See Werner Jaeger, *Aristoteles*, trans. Richard Robinson, (Oxford: 1967), 249, *L' Ethique a Nicomaque*, ed. and trans. Rene A. Gauthier and Jean Y. Jolif, 2 vols. (Louvain/Paris: 1970), Vol. 1/I, 66, and Enrico Berti, *La philosophia del "primo" Aristotele*, (Milan: 1997).

[28] Akasoy and Fidora, *The Arabic Version of the Nicomachean Ethics* (Leiden: Brill, 2005), 58.

[29] As Akasoy and Fidora claim "It would be consonant with its character to allow that the 'Seventh Book' is part of the *tafsir* of Porphyry, i.e. his Commentary in its Arabic form. We might thus obtain an explanation of the place of the 'Seventh Book', in the Arabic EN and the texts depending upon it, especially the *Summa Alexandrinorum* (see V below), i.e. that we have

i.e., as to the rest of the virtues, we have already spoken of them in the exoteric discourses, where sufficient has been said. For these being common doctrines applying to ethics in general, there are contained in them many excellent doctrines. But perhaps we seek special things more than concealed things. Someone may say that the reason for that is that we are loved because of honor more than because of philosophy (*qā'ilun inna 'l-'illah fī dhālika min ajli annā mahbūb li'l karamah akthar min hubbinā li' l-falsafah*).[30]

Here we are left with a rather vexing question regarding the potential distinction between the exoteric and the esoteric discourses of Aristotle. How are we to confirm the view that these exoteric discourses were in facts the works of Aristotle? The reference in the Seventh Book to seeking after special things more than concealed things for 'we are loved because of honor more than because of philosophy', is at once reminiscent of *Nicomachean Ethics* 1096a15-16 where Aristotle cites his love of truth more than his love of friends. This veiled reference to his predecessor and teacher, Plato, is perhaps also reflected in the relationship between al-Fārābī and Ibn Rushd, specifically al-Fārābī's unacknowledged influence upon Ibn Rushd with regard to the composition of the Commentary. While Ibn Rushd might openly acknowledge his debt to Porphyry's Commentary to address the relationship between the citizen and the divine legislator, Ihn Rushd only implicitly retrieves al-Fārābī's understanding of the divine legislator in Plato's *Laws* in order to present a more comprehensive account of the virtues of theoretical and practical wisdom, particularly through their inflection in his commentary on Aristotle's *Rhetoric*.[31] If this is in fact the case, why does Ibn Rushd not acknowledge his debt to al-Fārābī as the first Arabic commentator to rigorously defend a conception of politics that is admittingly Platonic? For it might be postulated that Ibn Rushd's reception and interpretation of the *Nicomachean Ethics*

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in the 'Seventh Book', in truncated and presumably otherwise modified form, the first part of Porphyry's *Commentary* (*tafsir*) dealing with the first part of EN, inserted appropriately in the middle of the work." (58)

[30] Akasoy and Fidora, *The Arabic Version of the Nicomachean Ethics* (Leiden: Brill, 2005), 57.

[31] Cf. Averroes, *Commentary on Aristotle's Rhetoric*, in the present volume and Friederike Woerther and Uwe Vagelpohl's contributions.

subscribes to a Platonic vision where the theoretical virtues always reign supreme. This vision even becomes apparent in his *Middle Commentary on the Rhetoric* as a substitute for the absence of the *Politics* in the Arabic world. One must take into account the implicit rhetorical strategy that is always a function of such a discourse. Such a rhetorical strategy at once valorizes the necessary correspondence between the practical sciences of ethics and politics, namely the opinions of the citizens and the actions of the divine legislator, and the theoretical science of metaphysics. Just as al-Fārābi questions the distinction between theory and practice throughout his interpretation of the *Nicomachean Ethics*, Ibn Rushd's distinction between the kinds of speech encountered in the realm of public debate and the kinds of speech employed in philosophical inquiry retrieves a politics already adumbrated throughout the *Republic*, namely the role of the divine legislator or philosopher king as inhabiting both metaphysical and ethico-political inquiry. With the figure of the philosopher king or *imam*, we are confronted with the apparent erasure of the distinction between metaphysics and ethics and hence a reminder of their irreducible unity. By presenting a historical overview of the transmission of Aristotle's ethico-political treatises in al-Fārābī, Ibn Sīnā (Avicenna), and Ibn Rushd (Averroes), one gains a more comprehensive sense of this inseparability which presents both promising opportunities and necessary challenges for both Arabic philosophy and the Western political tradition.[32]

[32] See Claudia Baracchi's essay in the present volume with regard to the al-Fārābī's systematization of the Greek and Arabic traditions, "In this way, al-Fārābī's restitution of the Greek texts returns them to us in a quite enigmatic light. His assimilation and interpretation of the Greeks, most notably of Aristotle, cannot not strike us (the farthest offshoot of a tradition that has systematized the Greek inheritance according to the rigid disciplinary partitions, severing metaphysics from physics, and above all the scientific endeavor from it ethico-political roots) as unfamiliar and strange."

The Shining and the Hidden: On Politics and Solitude from the "Greek Prophets" to **al-Fārābī**

Claudia Baracchi

In *The Attainment of Happiness,* ~~al-~~ al-Fārābī draws the course of studies leading from physics to metaphysics, psychology, and politics:

> At this point the inquirer will have sighted another genus of things, different from the metaphysical. It is incumbent on man to investigate what is included in this genus: that is, the things that realize for man his objective through the intellectual principles that are in him, and by which he achieves that perfection that became known in natural science. It will become evident concomitantly that these rational principles are not mere *causes* by which man attains the perfection for which he is made. Moreover, he will know that these rational principles also supply many things to natural beings other than those supplied by nature. Indeed man arrives at the ultimate perfection (whereby he attains that which renders him truly substantial) only when he labors with these principles towards achieving this perfection.[1]

At stake, then, is the order of inquiry concerning human potentiality, and how it may be actualized to the degree of perfection thanks to "rational" or "intellectual principles" belonging "in" the human. Through the process of perfection, completion and actualization, the human becomes who/what it is to be, becomes itself. In this sense, the human reaches its own "objective," that is, reaches itself as an objective, the objective that it itself is. Such a development oriented to perfection, that is, the complete activation of potential, is crucially sustained through principles exceeding "those supplied by nature," for "the natural principles in man and the world are not sufficient" (22). A

[1] *The Attainment of Happiness* (*Taḥṣīl al-saʿāda*), in *Alfarabi's Philosophy of Plato and Aristotle*, trans. Muhsin Mahdi (New York: The Free Press of Glencoe, 1962), 22-23. Hereafter, page references will be given parenthetically.

human being comes into her own, realizes and actualizes herself, in a development irreducible to causal concatenation and to the mechanicity characteristic of physical or elemental phenomena. With respect to human becoming, nature (at any rate, nature understood as inexorable causality) remains vastly silent, extends no all-encompassing orders. The human phenomenon exceeds natural jurisdiction even as it remains implicated in it: from within nature, the human is not merely the fruit of natural determination.

We may notice, already, that being human is neither given nor a gift. It may be given, at the limit, in the sense in which an assignment is: being human is a task. Indeed, it is "incumbent on man" to explore the meaning and confines of being human, the potentiality and limits, the possible configurations of such a mode of life. It is "incumbent" on the human to pursue its research past the study of nature, and even of metaphysical matters, and come back to itself, to consider its own inherent "principles." Such principles are operative in the carrying out of physical and metaphysical inquiries, indeed, they constitute the essential condition for such inquiries, yet are not thematically acknowledged in those discourses. From the start of the human absorption in questions regarding *phusis* and the causes sustaining physical phenomena, the intellectual principles "in" the human are operative but not manifest. Yet, they are that in virtue of which human self-realization is at all attainable. Becoming human, then, unfolds in the figure of a return to oneself, after the traversal of the sciences oriented outwardly. Such a self-reflective turn involves the analysis of the composite animation in which the intellectual principles inhere (psychology) and, at once, of their enactment (ethics, politics).

It should be underscored that the rational principles themselves inhabiting the human are not to be reduced to the order of natural causation. They do not operate automatically, but must be set to work, require deliberate solicitude and "labor" on part of the human. Thus, they exceed, and even complement, the causes by nature. The work of human perfection (of perfecting the human) appears as a supplement to natural determination. The thrust here is characteristically Aristotelian (suffice it to think of *Nicomachean Ethics* Alpha, but the entire trajectory of the ethical discussions confirms this orientation). Al-Fārābī continues:

> Furthermore, it will become evident to him in this science that each man achieves only a portion of that perfection, and what he achieves of this portion varies in its extent, for an isolated individual cannot achieve all the perfections by himself and without the aid of many other individuals. It is the innate disposition of every man to join another human being or other men in the labor he ought to perform: this is the condition of every single man. Therefore to achieve what he can of that perfection, every man needs to stay in the neighborhood of others and associate with them. It is also the innate nature of this animal to seek shelter and to dwell in the neighborhood of those who belong to the same species, which is why he is called the *social* and *political* animal. There emerges now another science and another inquiry that investigates these intellectual principles and the acts and states of character with which man labors toward this perfection. From this, in turn, emerges the science of man and political science. (23)[2]

[2] We find analogous formulations elsewhere in al-Fārābī, most notably in the *Political Regime* (*al-Siyāsah al-madaniyyah* [Hyderabad, 1346 AH], 38-39) and in *The Virtuous City* XXVI, which I have consulted in the annotated Italian translation by Massimo Campanini (al-Fārābī, *La città virtuosa* [Milano: Rizzoli, 1996]). The dual edition includes an introductory essay by the translator and the Arabic text established by Albert Nader (*Kitāb Arā' ahl al-madīnah al-fāḍilah* [Beirut: Dār al-Mashriq, 1985]). Campanini's Introduction is noteworthy for its receptivity to the resonances between al-Fārābī's thinking and the manifold Islamic tradition, in particular the Shia developments and, in this context, the Isma'ili lineage. Calling into question the strictly Greek/rationalistic interpretation of al-Fārābī, means assessing critically both the paradigmatic approach by Richard Walzer (*Alfarabi on the Perfect State* [Oxford: Clarendon, 1985]) and the Straussian articulation of the esoteric problem. It is barely appropriate to recall that the rationalistic lens can be no less blinding and distorting in the approach to things Greek.

The perfection that can be achieved individually always exhibits a partial, aspectival character. This is so not by accident, let alone because of contingent deficiency. Rather, it constitutes a structural, anthropological condition. This means, at once, that perfection remains elusive, always fugitive in the experience of the individual, and that human perfection is not one, but demands to be understood in light of the indefinite multiplicity and com-position (syn-thesis) of differing, ever singular attainments. As Aristotle notes in the *Nicomachean Ethics*, political inquiry regards "beautiful and just things," which "have many differences and fluctuations" (1094b14-16). Indeed, the life of an individual allows only for a finite perspective on human perfection and realizes it in unique ongoing variations. Furthermore, it is only in her interplay with others that the individual may at all strive for perfection and in deed asymptotically tend to it. The human, then, is not unconditional, and its finitude should be understood in terms of both partiality and communal bond, uniqueness and interdependence, individual quest for self-realization and the chorality supporting it. Mortality and community, thus, designate the twofold condition of the political animal, and it is in light of this that human perfection can at all be conceived.

Thus—and this is of the utmost importance—political aggregation is involved in the disclosure and attainment of the highest end. Irreducible to matters of mere instrumentality and survival, communal life bespeaks orientation to happiness (to the fullest realization of human kind) in its entire spectrum. As the togetherness of the limited and one-sided, the political association displays the com-position of human

manifold finality.[3] Here al-Fārābī does not specify *what kind* of community, but only *that* community is necessary in that regard. Far from a binding constraint on human nature, community *as such* constitutes the essential condition allowing human nature fully to unfold its potential and flourish.[4] Far from the tradition of the social contract in any of its variants (i.e., far from the view of culture/civilization as the fruit of contractual repression and concomitant sublimation/spiritualization), in al-Fārābī political life nurtures that which is most sublime in the human, frees the human in its luminosity and fosters its organic growth. This means, among other things, that the sublime manifestation of the human is no cultural construct, let alone device or fabrication, but a human possibility unfolding if finding the appropriate conditions, or even if not impeded by circumstances.

Already from such premises we gather a characteristic emphasis on union, a holistic vision compelling the thrust towards integration and connectedness. Such a view of the whole, whether politically or metaphysically inflected,[5] discloses at the heart of

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[3] Consider Aristotle's remarks on the completeness of political finality (*Nicomachean Ethics* 1094b1-11) and the statement that political finality, far from limited to expediency, concerns "life as a whole" (1160a19-23). The Aristotelian conjunction of politics and happiness is a cherished motif in Dante (particularly in the *Convivio* and *Monarchia*), absorbed by the Latin West through the Arabic-Islamic formulations from al-Fārābī to Ibn Rushd.

[4] In this light, L. Strauss' claim that "[p]hilosophy is *the* necessary and sufficient condition of happiness" strikes one as altogether extravagant. This impression is not mitigated even if considered in context, namely, with reference to al-Fārābī's reading of Plato ("Fārābī's Plato," in Louis Ginsberg Jubilee Volume [New York: American Academy for Jewish Research, 1945], 381).

[5] But, in fact, at stake is precisely the status of metaphysics and its unstable demarcation. We shall return to this. For the moment let us simply note that, at this stage, the only conspicuous excess vis-à-vis *phusis* seems to be constituted by ethics/politics—in the literal sense that ethical formation is not by nature and demands the activation of principles beyond natural causation. Rigorously speaking, then, metaphysics, the beyond-*physis*, would be politics. This is consistent with the Aristotelian view of ethics/politics as the most encompassing ("architectonic") discipline, constituting the context that envelops and regulates even the exercise of the sciences/first philosophy. I develop these

each discrete phenomenon a choral belonging that inscribes it in the vertiginous perspective of oneness and calls for progressive unification.

In this way al-Fārābī casts political science as the crowning moment of the theoretical progression, concerned as it is with matters at first least perspicuous to us—apparently familiar, always already underway, and yet remaining mostly below the threshold of consciousness and explicit analysis. He further elaborates on political science as the study of ethical structures, illuminating excellent habits and everything that fosters perfection:

> Then he should set out next upon the science of man and investigate the *what* and *how* of the purpose for which man is made, that is, the perfection that man must achieve. Then he should investigate all the things by which man achieves this perfection or that are useful to him in achieving it. These are the good, virtuous, and noble things. He should distinguish them from things that obstruct his achieving this perfection…. This is political science. It consists of knowing the things by which the citizens of cities attain happiness through political association in the measure that innate disposition equips each of them for it. (24)

We should observe, moreover, that the political association is no disparate collection, but rather exhibits the lineaments of an organic order, ultimately inscribed within the encompassing organism of the cosmos as a totality within the totality. Order here names nothing arbitrary or conventional. Instead, it designates the organization reflecting the scansions and partitions of the world:

> It will become evident to him that political association and the totality that results from the association of citizens in cities correspond to the associations of the bodies that constitute the totality of the world. He will come to see in what are included in the totality constituted by the city and the nation the likenesses of what are included in the total world. Just as in the world there is a first principle, then other principles subordinate to it, beings that proceed from these principles, other beings subordinate to these beings, until they terminate in the beings with the lowest rank in the order of being, the nation or the city includes a supreme

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systematic issues in my *Aristotle's Ethics as First Philosophy* (Cambridge: Cambridge UP, 2008).

> commander [first principle], followed by other commanders [principles], followed by other citizens, who in turn are followed by other citizens, until they terminate in the citizens with the lowest rank as citizens and as human beings. Thus the city includes the likenesses of the things included in the total world. (24-5)

A vision of the totality of the world reveals its concatenation: cities and constellations of cities, wholes within wholes, articulated in consonance with the structures and hierarchies of the cosmos. Especially outstanding is the similarity yoking together the city and the sky, in fact, the ruler of the community (in his most accomplished expression) and god. Such a likeness reveals the self-propagation of the principle, permeating the whole in waves of increasing dilution or privation. Even if not explicitly laid out, the movement of procession out of the one, the exorbitantly archaic origin, is adumbrated here.[6]

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[6] In the *Political Regime*, cit., one finds parallel statements involving the series of analogies spanning the whole cosmos: just as the individual human being is homologous to the political organism, so the political organism in its excellence reflects the sublime perfection of the sky. Ethical and political formation entails looking at the sky, and the sky appears as a city celestial. Implicated in this progression from the highest and most comprehensive perfection to the minute perfection of the individual organism, and even its organs, is the emanative structure connecting the cause of the whole, the ineffable one god, to the hierarchy of beings stemming from it. Fārābī's formalization of the emanative structure and the problems of the intellect will extend its influence through Ibn Sinā to Ibn Rushd, and inform the cosmological framework of Western Mediaeval thought (such a legacy is radiantly perspicuous in Dante's *Comedy*). In this regard, al-Fārābī originally integrates Aristotelian motifs within the broad Platonic and neo-Platonic (especially Plotinian) vision; and yet, we should also note that the elements of a hierarchical chain emanating from the unknowable god are present also in the Ismāʿīlī vision. In this connection, see P. Walker, "Cosmic Hierarchies in Early Ismāʿīlī Thought. The View of Abu Yak'ub al-Sijistani," in *Muslim World* LXVI (1976); P. Morewedge, ed., *Neoplatonism and Islamic Thought* (Albany: State University of New York Press, 1992); and, of course, H. Corbin, *Histoire de la philosophie islamique* (Paris: Gallimard, 1964). In the *Book of Religion* (*Kitāb al-millah*, ed. by M. Mahdi [Beirut: Imprimerie Catholique, 1968]) al-Fārābī again posits the correspondence between above and below, the celestial maker and the earthly ruler, establishing the latter's action as a genuine *imitatio dei*. In its excellence, politics echoes the cosmic paradigm: the creative and supportive act of the one "ordering the cosmos" (*mudabbir al-ʿālam*) is mirrored in the constitutive and analogously supportive act of the one "ordering the virtuous community" (*mudabbir al-ummah al-fāḍilah*).

Here, however, we limit ourselves to noting how this passage comes to a close. "This, then, is theoretical perfection," al-Fārābī states. "As you see," he continues, "it comprises knowledge of the four kinds of things by which the citizens of cities and nations attain supreme happiness. What still remains is that these four be realized and have actual existence in nations and cities while conforming to the account of them given by the theoretical sciences" (25). Again, the supreme enactment of happiness manifests itself through communal belonging, in fact, regards the members of communities, in the plural—that is, in the plurality and variety of "cities and nations."[7] In such contexts, "the four kinds of things" earlier identified as the "theoretical virtues, deliberative virtues, moral virtues, and practical arts" (13) must not only be intellectually discerned but also, essentially, brought into being, practiced. We note the mutual implication of theoretical apprehension and political life: on the one hand, contemplation provides the insightful knowledge informing and steering ethical-political life from within; on the other hand, the collective organism constitutes the theater necessary to the full enactment of human potential.[8]

That no isolated individual can comprehensively attain happiness highlights, indeed, the relevance of the material conditions necessary for such an enterprise. The attainment of happiness can be no matter of mere contemplative retreat, insular and separate. The realization and enactment of perfection as far as humanly possible, of the

[7] Al-Fārābī is consistently attentive to the multiplicity at the level of peoples, political organisms, groups, and even individuals. Political space comes to embrace "the inhabited part of the earth" (27), the *oikoumene* of Greek descent.

[8] See M. Fakhry, *A History of Islamic Philosophy* (New York: Columbia UP, 1987), especially 110-117; F. Najjar, "Al-Fārābī on Political Science," *Muslim World* 48 (1958), 94-103; and Miriam Galston, *Politics and Excellence: The Political Philosophy of Alfarabi* (Princeton: Princeton UP, 1990).

good as far as humans can conceive and experience it, rests on worldly and practical requirements. And even the principles that political thinking comes to discern in the human, and to contemplate in act, are embedded in the living world to begin with, woven into the fabric of our quotidian vicissitudes, at first unthematic, unconscious. The philosophical progression has to do with letting that emerge to consciousness, with becoming aware of what is taking place always already, if unnoticed. This is the highest accomplishment. Such an acquisition of consciousness, alone, allows for a critical approach to living, for the genuine possibility of choice, for the incisive exercise of deliberation and intervention in the theater of the world, and ultimately for change—beyond natural causality and its automatisms.

The suspended remarks, by which al-Fārābī summarizes and concludes the argumentative trajectory of *The Philosophy of Aristotle*, reflect the same set of concerns. First of all, they present the indissoluble intertwinement of physical and metaphysical studies, where the latter are not understood as exceeding physics, as if concerning an altogether discontinuous region of being. Rather, physics and the science thrusting beyond it regard the same beings, but in different ways: al-Fārābī says that when Aristotle turns to consider matters such as the active intellect, he inquires "into the beings in a way more inclusive than natural theory" (129). What will have been called "metaphysics" investigates "the beings," in the plural, "in a manner different than natural inquiry" (130), that is to say, more comprehensively, according to what traverses beings and is common to them. Thus, "metaphysics" extends physics, takes it beyond itself, without however leaving *phusis* behind: whatever excess to physics may be signaled in this gesture, it remains an excess inherent *in the beings of physics*, an excess becoming

manifest when beings are disclosed according to the whole. Strictly speaking, then, "we do not possess metaphysical science" (130).

Secondly, "metaphysics" (at this point the quotation marks are a cautious as well as necessary reminder) does not merely continue the task of physics, there where "natural theory terminates in the active intellect and the mover of the heavenly bodies, and then stands still" (129). Indeed, the discussion of matters "metaphysical," and most notably of the active intellect, marks the culmination, i.e., the perfection, of human achievement. For in the contemplation of the active intellect the human realizes itself: "in some manner," the human being "becomes united with it [the active intellect] when it is intellected by him" (127). Or even, says al-Fārābī more starkly, "the soul of man itself becomes this intellect" (127). Thus, he concludes by laying out the twofold purposiveness of this discipline: it is pursued, first of all, "to render perfect the human intellect for the sake of which man is made, and second, to perfect our defective natural science" (130). Nature and human nature, phenomena human and otherwise, cannot be accounted for merely by reference to mechanics and causal determination.[9]

Thirdly, and consequently, the ethical-political conditions are essentially woven into the fabric of physical/"metaphysical" investigations. The inquiry that will have been called "metaphysics" is involved in both "natural philosophy" and "the political and human philosophy" to the point of serving and perfecting them (130). This is probably why al-Farabi ends by juxtaposing the "more human" "understanding of the causes of visible things, which the soul desired," to the "knowledge" that is "merely *necessary*." The latter, essential as it may be to intellectual acquisition, was "of old" supposed to be

[9] In *The Attainment of Happiness*: "[N]atural principles in man and in the world are not sufficient" (22).

"excellent" but it "is not" (130), and indeed cannot be understood for its own sake, aside from the task of "rendering man substantial or making him reach his final perfection." The formulation here is incisive: "It has become evident that that necessary knowledge is for the sake of this understanding," this exquisitely human understanding assisting in the labor of becoming (130).

Quite punctually, then, the *magister secundus* (second only to Aristotle) ends with a reminder of philosophy at the heart of human vicissitudes, both inflecting and inflected by individual volition and contingent variation: not a purely intellectual exercise but the labor of intelligence drawing a course of action, desirously bringing forth the being(s) it thinks.[10] The injunction is that philosophy be enacted and embodied: "philosophy must necessarily come into being in every man in the way possible for him" (130). Whether politically or otherwise modulated, the thinking of unity in no way involves indifferentiation and abstraction: it is the singular as such that converges with others into one, the differing as such that coheres in an organic whole. As al-Fārābī the musician knows well, harmony involves precisely this: the articulation of difference as such, the different sounding together from a distance that must be maintained, divergence and discrepancy brought into consonance. This is precisely what the chord indicates: an accord that, far from dissolving and resolving differences, magnifies and preserves them as that which is joined. Difference need not entail separation. Unity is composite, and

[10] In *The Attainment of Happiness*: the "voluntary intelligibles" (26), brought forth by "practical philosophy" and "embodied in laws" (45).

only through such a layered mediation, only in the passage across irreducible complexity, may the thinking of simplicity, of the "uncompounded" (126-7), become at all available.[11]

The preceding remarks, however fragmentary and limited in scope, allow for a glimpse of the systematic rigor and, simultaneously, the uninhibited originality with which al-Fārābī inherits the Greek discourses. The exploration of human *dunamis*, the ongoing task of being (becoming) human, happiness as full self-activation and realization, the ethico-political environment in which philosophical reflection develops, the interpenetration of ethics and politics and, in turn, their architectonic (encompassing and ruling) function—these broad-ranging themes are certainly drawn from the Platonic as well as Aristotelian elaboration, and in this respect reference to the *Republic* and *Nicomachean Ethics* (texts that al-Fārābī knows closely) would suffice.

Let this also be said in passing: with respect to such basic concerns and overall posture, al-Fārābī's view of the harmony of Plato and Aristotle seems far from a form of naïveté (whether due to philological inadequacy, superficial analysis of the argumentation, or strategic, defensive preoccupations). This is why they are juxtaposed as peers, and not identified as teacher and epigone. "Both," al-Fārābī affirms, "have given us an account of philosophy" (49). Indeed, they are so far from philosophy as a scholastic exercise (as the routine of discipleship) that they also give us "an account… of the ways

[11] The thinking of simplicity, of the uncompounded, indicates the nearing of and to the agent intellect—the tenth intellect, the angel of Ibn Sinā, the luminous messenger at the heart of composite life: "there is here a certain intellect, uncompounded and in act, that has engendered the primary intelligibles in the potential intellect…. Hence, it is a principle in three respects: as an agent, as an end, and as the perfection that man attempts to approach. It is therefore a separate form of man, a separate end and a prior end, and a separate agent…" (126-7).

to re-establish it [philosophy] when it becomes confused or extinct" (50).[12] The differences between Plato and Aristotle are not overshadowed (they are, in fact, highlighted in the two separate presentations al-Fārābī provides). But their concordance, however hidden, invites the work of harmonization, bringing them together in a unitary arrangement.[13] It invites the unveiling of friendship beyond the discrepancies in the ways of conducting the investigation, in the discursive turns, in the emphases and imagery characterizing the exposition.[14] "So let it be clear to you that, in what they presented, their purpose is the same, and that they intended to offer one and the same philosophy" (50).

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[12] In connection with this passage and with al-Fārābī's philosophical genealogy, from the Chaldeans to the Syrians and the Arabs (43), consider Aristotle's meditation on the temporality of philosophy in *Metaphysics* Lambda 1074b1-14.

[13] We cannot here possibly begin to address al-Fārābī's treatise on *The Harmonization of the Two Opinions of the two sages: Plato the Divine and Aristotle*, in Alfarabi, *The Political Writings*, trans. by Charles E. Butterworth (Ithaca, NY: Cornell UP, 2001), 115-167. On the concordance of Plato and Aristotle, and even on a certain prominence accorded to the latter in neo-Platonism after Plotinus, see Pierre Hadot, "L'harmonie des philosophies de Plotin et d'Aristote selon Porphyre dans le commentaire de Dexippe sur les *Catégories*," in *Plotino e il Neoplatonismo in Oriente e in Occidente*, Atti del convegno internazionale, Roma, 5-9 ottobre 1970 (Roma: Accademia Nazionale dei Lincei, 1974), 31-47.

[14] Here al-Fārābī displays a profound understanding of the Aristotelian view and experience of friendship. It is between or among philosophers that friendship perspicuously emerges as harmony—as that which joins those who differ. Consider *Nicomachean Ethics* 1096a12-16, where Aristotle, in stating that we should love the truth above our friends, is in fact quoting Plato, who, in turn, attributes such sentence to Socrates (*Phaed*. 91c, *Rep*. X 595b-c). Precisely there where he seems to be setting friendship (with Plato and the Platonists) aside for the love of truth, Aristotle is in effect recognizing that he and they share a common venture. At stake in the privileging of truth is the recognition that others pursue and love it as well, in their own way. And it is crucially because of this commonality that they are our friends. On this ground we can realize our coming together in a broader com-position, even as our positions may seem to diverge. Pursuing wisdom together, as friends, does not mean coming to the same results, but rather cultivating together a certain *ethos*, the life of (self-) examination. Friendship is a bond across difference. See also Thomas Aquinas' *Commentary on the Nicomachean Ethics* (I.6.5).

Equally rooted in the Greek precedents, albeit taken in quite novel directions and articulated with singular refinement, are the questions regarding the relation of the creative principle (one, god, intellect) and nature, the organization of the cosmos in terms of progressive distancing from the first cause and, concomitantly, the first cause propagating, emanating the world as if by dehiscence, overflowing out of superabundance, in a movement that at once sends forth, hierarchically organizes, and harmonically holds together. While these questions are inconspicuous in *The Attainment of Happiness*, they constitute the essential core of al-Fārābī's systematization and will bear momentous consequences in the Arabic environment and beyond. Plato's *Timaeus* alone, even aside from neo-Platonic constructs, could fruitfully frame these themes. But of course, haunting this scene are various intersecting figures: Proclus' tripartite henology, the Hellenistic assimilation of Plato and Aristotle in a discourse weaving together noetic investigation, cosmological architectonics, ethico-political formation, and the meditation on the divine—not to mention Islamic motifs such as the *imam* of Shia provenance, as we shall see shortly.

In this way, al-Fārābī's restitution of the Greek texts returns them to us in a quite enigmatic light. His assimilation and interpretation of the Greeks, and most notably of Aristotle, cannot not strike us (the farthest offshoot of a tradition that has systematized the Greek inheritance according to rigid disciplinary partitions, severing metaphysics from physics, and above all the scientific endeavor from its ethico-political roots) as unfamiliar and strange. After all, the Western tradition, in its dominant aspects, has consistently privileged the discipline of metaphysics understood as the highest and unassailable knowledge, whether in the theological or scientific mode—the knowledge

(at once allegedly and absolutely) emancipated from material conditions. Accordingly, it has marginalized practical reflection, whether ethics or politics, obscuring its role as primordial and all-encompassing condition of possibility, and reducing it to a secondary philosophical field, at the limit a matter of mere application of pre-constituted prescriptions.

But al-Fārābī's reading and re-elaboration of the Greek thinkers, in its founding character and lasting influence, forcefully shows how commentary may be the site not only of sophisticated interpretation, but also of the deepest speculative effort, and that the transmission and repetition of texts may indeed entail the thorough transformation (or unprecedented illumination) of them.[15] And this may have less to do with inaccuracy or misunderstanding than with the commitment to re-enact the thrust of the search, of the philosophical longing, in one's own way, and therefore in light of the possibility of renewal. This should have a sobering effect on the way we view the crystallization of the ancient texts in our tradition (if it is indeed one, and whatever the possessive adjective may mean), and the often unwarranted self-confidence regarding the truth and exhaustiveness of our reading, of what we read into the past—as though we had resolved the problem of our relation with what constitutes us, with the past and with our own (no less constitutive) projections into the past. These are basic problems that concern the

[15] See, for instance, Joshua Parens, *Metaphysics as Rhetoric: Alfarabi's Summary of Plato's* Laws (Albany: State University of New York Press, 1995), on the phenomenological (*ante litteram*) interpretation of Plato outlined in Alfarabi's paraphrase.

philosophy of history no less than all inquiry concerning truth, its status, its anthropological implications.[16]

Happiness, then, would find its fullest realization in the assimilation of the human to the intellect. In reporting Aristotle's research, al-Fārābī notes: "When he investigated this intellect, he found that it is an intellect in act, had never been potential, and has always been and will always be… when the human intellect achieves its ultimate perfection, its substance comes close to being the substance of this intellect" (127). In its quest for perfection, the human being strives towards the intellect in act as a paradigm, that is to say, as the horizon and element of the most accomplished human becoming:

> … in achieving the perfection of its substance, the human intellect follows the example of this intellect. This intellect is the end… the most perfect end, and it is the agent. It is thus the principle of man as the agent, ultimately, of that which renders man substantial insofar as he is man. It is the end because it is that which gave him a principle with which to labor toward perfection and an example to follow in what he labors at, until he comes as close to it as he possibly can. (127)

Attaining happiness, thus, means "following the example" of the agent intellect, approaching it as much as possible—relating to the "example" in a mode that closely resembles that of imitation or, more pointedly, in an oscillation between imitating and becoming it. As a matter of fact, the intellect in act is said to be the "separate form" of the human being, which the human being undertakes to "follow" and "intellect," tending to the annihilation of all distance, "separation," and "intermediary," so as to "become" such

[16] We barely need to mention the prominence that philosophical reflection of the last century has accorded to questions of textual/semiotic interpretation, commentary, critique, and concomitant responsibilities. From Benjamin to Foucault, from Gadamer to Derrida and Irigaray, whether in the form of structural analysis, conceptual archeology, genealogy, double reading, or deconstruction, interpretation becomes the site of an interrogation both perturbing the category of the past and suggestively accessing the present.

an intellect, or at least asymptotically become one with it (again, in an oscillation between unification and identification). (127)

In *The Attainment of Happiness*, the cipher of human perfection in the highest degree is the figure of the philosopher, legislator, and *imam*. Much as here al-Fārābī may emphasize that "the idea of *imam*, philosopher, and legislator is a single idea" (46), it is noteworthy that the human thrust towards becoming the intellect (the "uncompounded") should result in a compound. Indeed, in such a figure are conjoined the "theoretical virtue" characteristic of the philosopher, the "knowledge concerning the conditions of practical intelligibles" (practical deliberation) distinguishing the legislator, and the exemplariness of the imam, described as "the one whose example is followed and who is well received" (46). Such a figuration returns us, again, to the relation between ethico-political matters and "theoretical" knowledge, not to mention the *vexata quaestio* of the connection between philosophy and religion. It also occasions a few observations that will complement our previous emphasis on community as the necessary condition for individual self-realization. In closing, thus, we shall consider how the highest human accomplishment, which becomes possible within the political framework alone, may remain altogether unrecognized in that space, thereby failing to actualize itself and explicate its leading and orienting power. The political organism granting such an attainment may be structurally inadequate to recognize it; the most remarkable fruit of living together may remain unshared. In fact, it may have protectively to dissimulate itself and abide in hiding, a secret below the surface of ordinary worldly dealings.

Let us examine first the com-position of philosophy, politics, and spiritual authority. The fact that, al-Fārābī repeats, "philosopher, supreme ruler, prince, legislator,

and *imam*" designate "but a single idea" (47) amplifies our previous considerations on the indissoluble intertwinement of physical and metaphysical, theoretical and practical matters. Such a unifying view indicates the essential convergence of the disciplines of philosophy, ethics/politics, and religion: they say the same while remaining irreducible in their sayings and ways. Al-Fārābī confronts this point with subtle dynamism.

On the one hand, he underscores the primordiality and commanding role of theoretical knowledge (philosophy *stricto sensu*) vis-à-vis ethical and political deliberation as well as religion. Philosophy and religion differ in the manner in which they bring about knowledge and assent: in the former case the "essence" of something is made "comprehensible" through intellectual perception, in the latter the essence is "imagined through the similitude that imitates it" (44). Let us follow the movement of al-Fārābī's thinking:

> Now when one acquires knowledge of the beings or receives instruction in them, if he perceives their ideas themselves with his intellect, and his assent to them is by means of certain demonstration, then the science that comprises these cognitions is *philosophy*. But if they are known by imagining them through similitudes that imitate them, and assent to what is imagined of them is caused by persuasive methods, then the ancients call what comprises these cognitions *religion*. And if those intelligibles themselves are adopted, and *persuasive* methods are used, then the religion comprising them is called *popular*, *generally accepted*, and *external* philosophy. Therefore, according to the ancients, religion is an imitation of philosophy. Both comprise the same subjects and both give an account of the ultimate principles of the beings. For both supply knowledge about the first principle and cause of the beings, and both give an account of the ultimate end for the sake of which man is made—that is, supreme happiness—and the ultimate end of every one of the other beings. (44)

Philosophy teaches and compels assent by its simple, immediate appeal to the ideas themselves, while religion wanders outside, takes the detour through exteriority. It is "external philosophy," phenomenally evoking intellectual contents, replicating them out of its implication in images. Imitation is a fantastic, phantasmatic affair. Again, al-Fārābī

contrasts philosophy and religion, and lingers on the imitative operation of the latter—probably intuiting the undecidability of the translation from intellect into image, indeed, the abyss in the becoming visible of the invisible:

> In everything of which philosophy gives an account based on intellectual perception or conception, religion gives an account based on imagination…. Philosophy gives an account of the ultimate principles… as they are perceived by the intellect. Religion sets forth their images by means of similitudes of them taken from corporeal principles and imitates them by their likenesses among political principles. It imitates the divine acts by means of the functions of political principles. It imitates the actions of natural powers and principles by their likenesses among the faculties, states, and arts that have to do with the will…. It imitates the intelligibles by their likenesses among the sensibles: for instance, some imitate *matter* by *abyss* or *darkness* or *water*…. It imitates the classes of supreme happiness… by their likenesses among the goods that are believed to be the ends. It imitates the classes of true happiness by means of the ones that are believed to be happiness. It imitates the ranks of the beings by their likenesses among spatial and temporal ranks. (44-45)

Philosophy and religion, then, proceed by intellectual perception/demonstration and imaginative persuasion/imitation, respectively. In this passage, practical deliberation (requiring a fine-tuned evaluation of contingency and of the ways effectively to intervene in it) tends to be assimilated to the order of the imaginal.[17] It seems that the principles of all the beings, constituting the subject matter common to the disciplines, cannot be said simply. They require approaches from different perspectives and in different registers.[18] However, al-Fārābī insists on the privilege of philosophy. Because of its essentially

[17] The legislator "is the one who invents the images and the persuasive arguments," al-Farabi says (47).

[18] *Logos* manifests itself in its manifoldness and irreducibility to the demonstrative mode, in fact, to the domain of human utterance. Signification operates well beyond logic and even verbalization, disclosing a richer sense of meaning in the stratification and interpenetration of multiple linguistic/semiotic orders.

imitative trait, religion constitutes a "popularization" of the theoretical sciences, indeed, the field of "the image-making theoretical sciences" (39).[19]

To be sure, in its mimetic elaboration, religious imagination "attempts to bring the similitudes of these things as close as possible to their essences" (45). But, of course, the adequacy of the images with respect to the intelligibles imitated is precisely the question, especially in light of the poetic overtones never fully silenced in the thinking of likeness: similitude is always also a simile, analogy is never fully stabilized in a codification or proportional calculation.[20] Thus, al-Fārābī repeats and peremptorily concludes, "in

[19] See *Political Regime*, cit., 55-57, and *Virtuous city*, cit., XXV, where al-Fārābī, in relation to the vision of the intelligibles, speaks of "prophecy" (*nubuwwah*) of things divine.

[20] Of course, for al-Fārābī imagination here means no mere story telling, work of inventiveness, let alone anything fictional or arbitrary. Rather, imaginative work occurs at the same level of intellectual perception, although in another mode. Such a synthesis paradigmatically takes place in the figure of the legislator, securing images to the order of knowing. The imitations of intelligibles "are *philosophy* when they are in the soul of the legislator. They are *religion* when they are in the souls of the multitude. For when the legislator knows these things, they are evident to him by sure insight whereas what is established in the souls of the multitude is through an image and a persuasive argument. Although it is the legislator who also represents these things through images, neither the images nor the persuasive arguments are intended for himself. As far as he is concerned, they are certain" (47). The identity of the intellected and the imagined emerges, at this level, perspicuously. The same content is variously inflected as it propagates across the folds of the world. The legislator, al-Fārābī reiterates, "is the one who invents the images and the persuasive arguments, but not for the sake of establishing these things in his own soul as a religion for himself. No, the images and the persuasive arguments are intended for others, whereas, as far as he is concerned, these things are certain. They are a religion for others, whereas, so far as he is concerned, they are philosophy. Such, then, is the true philosophy and the true philosopher" (47). However, the peculiar emphasis discernible here betrays the preoccupation with the fragility of the imaginative work—a questionability and dubious authoritativeness that this mode of imitation shares with poetic inspiration, prophetic rapture, visionary enthusiasm at large. The problem is, of course, immense and we cannot here even begin to broach an introduction to it. It certainly concerns al-Fārābī as well as the ensuing tradition of Arabic Aristotelianism, indeed, *falsafa* as such, and not only the Persian-Eastern developments of neo-Platonism (from Ibn Sinā to Suhrawardī). The considerations by al-Fārābī just quoted show that, far from being tendentious, Corbin's meditations on the issue of the imaginal (the distinction

everything of which philosophy gives an account that is demonstrative and certain, religion gives an account based on persuasive arguments. Finally, philosophy is prior to religion in time" (45).[21]

And yet, on the other hand, al-Fārābī, affirms with analogous persistence the equiprimordiality and interdependence of theoretical and imaginative/imitative faculties. This becomes most evident in the examination of the legislator—"he who, by the excellence of his deliberation, has the capacity to find the conditions required for the actual existence of voluntary intelligibles in such a way as to lead to the achievement of supreme happiness" (45). Granted, al-Fārābī says that the "voluntary intelligibles" (the intelligibles that can be brought about) must be intellected to begin with. He says as well that the legislator cannot "find their conditions" (which, alone, make his action in the world efficacious and the attainment of happiness in cities possible) "without having perceived supreme happiness with his intellect" (45). Accordingly, "if he intends to possess a craft that is authoritative rather than subservient, the legislator must be a philosopher" (46). And yet, al-Fārābī discerns the same logic of interdependence and mutual implication in his analysis of the philosopher. Far from depicting him in terms of unqualified priority, autonomy, and separation, he observes that the situation of the philosopher is "similar" to that of the legislator:

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between imaginal and imaginary, between *imaginatio vera* and fantasy, and hence the issue of the *mundus imaginalis* and the "active imagination" properly perceiving it) are central in this context. See in particular his *Corps spirituel et Terre céleste: de L'Iran mazdéen à l'Iran shî'ite* (Paris: Buchet/Chastel,1979).

[21] The assertion of the priority of philosophy in time is surprising in light of the opening statements about "primary knowledge," possessed by human beings from the start and yielding the first premises. Such a knowledge operates below the threshold of consciousness and not demonstratively (13). Only in this sense, it would seem, could philosophy be understood as temporally more archaic.

> if the philosopher who has acquired the theoretical virtues does not have the capacity for bringing them about in all others according to their capacities, then what he has acquired from them has no validity. Yet he cannot find the states and the conditions by which the voluntary intelligibles assume actual existence, if he does not possess the deliberative virtue; and the deliberative virtue cannot exist in him without the practical virtue. Moreover, he cannot bring them about in all others according to their capacities except by a faculty that enables him to excel in persuasion and in representing things through images. (46)

The impotence, and therefore the imperfection, of the theoretical virtues severed from the practical and imaginative ones, could hardly be stated more categorically.[22] Thus, the intertwinement of philosophy and the other modes of knowing is not simply for the sake of the guidance and completion of the latter. Rather, the fulfillment of philosophy itself is here at stake. In a lapidary statement, al-Fārābī asserts that, "if it be determined that the theoretical virtue reach its ultimate perfection in every respect, it follows necessarily that he [the philosopher] must possess all the other faculties as well" (46).

The imitative relation between the philosophical and religious disciplines is peculiar indeed. On the one hand, the religious/imaginative gesture is illuminated as secondary (even later in time), as a mere imaginal reverberation of intellectual perceptions. One the other hand, in its abysmal character, unfathomable from the point of

[22] But is it only a matter of the impotence, or also of the impossibility of philosophy as such? Especially in light of al-Fārābī's sumptuously imaginal thinking, we wonder whether and how the disjunction of philosophy from images can at all be conceived. Unless, of course, by philosophy we mean the silent, dazzling intuition beyond discursive articulation. Al-Fārābī observes that, if the images are the offspring (and imitation) of preceding knowledge, the converse is also true, i.e., intellectual perceptions (no less than practical matters) come most fully into their own thanks to images, i.e., they are perfected in virtue of their passage through imitation: "Once the images representing the theoretical things demonstrated in the theoretical sciences are produced in the souls of the multitude and they are made to assent to their images, and once the practical things… take hold of their souls and dominate them so that they are unable to resolve to do anything else, then the theoretical and practical things are realized" (47). Again, theoretical knowledge is most properly realized in action. It is *as such* folded into the imaginal/practical becoming of the world.

view of calculation, the work of imagination is acknowledged as equally founding and accorded a certain primordiality with respect to perfected philosophy. But, in this way, what does imitation come to designate? How are we to understand the imitative bond if the imitation (the image) is a necessary condition for the perfected enactment of the imitated (the intelligible)? It would seem that "philosophy" is in play here in at least two ways: first, as intellectual apprehension as yet unmediated and inarticulate, from which the imaginative articulation would stem; and second, as discursive articulation proceeding by demonstration. The imaginative discourse would be secondary with respect to "silent" philosophical insight, but prior with respect to philosophy spoken and speaking—which means, among other things, that demonstrative discourse as such (i.e., in its plenitude) is never simply emancipated from the imaginal (i.e., rhetorical, figurative, sensible) element. On the contrary, the image should be woven even into the strictest argumentation—or else, in pure abstraction, the argument cannot say, touch, move, bring about anything. This casts light on the equal standing of philosophy and religion (intellectual and imitative work), as if they would draw upon the same source of unspoken understanding. At stake, then, are two ways of thinking, thinking through intelligible axioms and thinking through images, equally disclosive of truth. Their equiprimordiality and interdependence are evident in the figure of the legislator.

As anticipated, we conclude these remarks by turning to the somehow surprising scenario with which *The Attainment of Happiness* ends. Indeed, the treatise studying the conditions and principles of human happiness closes with the image of the eminently accomplished human being remaining both unemployed and unrecognized within his or her own city—the city that essentially made him or her possible.

After contemplating the convergence of *imam*, prince, legislator, and philosopher, and recognizing in this composite the figure of "true philosophy and the true philosopher," al-Fārābī looks at the phenomenon of "mutilated philosophy," at "the counterfeit philosopher, the vain philosopher, or the false philosopher… who sets out to study the sciences without being prepared for them," i.e., without fulfilling "the conditions prescribed by Plato in the *Republic*" (48). He then proceeds to restate the psychological substratum necessary not only for the study of ethics, but for the study of the contemplative sciences as well—illuminating, once again, ethical and political formation as the archaic receptacle (the morphic field) within which all human endeavors, including the study of the sciences and of the highest science, take place. But, of course, it can always happen that such prerequisites be forgotten and neglected, leading to various perversions in the exercise of philosophy:

> The false philosopher is he who acquires the theoretical sciences without achieving the utmost perfection so as to be able to introduce others to what he knows insofar as their capacity permits. The vain philosopher is he who learns the theoretical sciences, but without going any further and without being habituated to doing the acts considered virtuous…. The counterfeit philosopher is he who studies the theoretical sciences without being naturally equipped for them. Therefore, although the counterfeit and the vain may complete the study of the theoretical sciences, in the end their possession of them diminishes little by little…. For the natural dispositions of the former and the habit of the latter overpower what they might have remembered in their youth and make it burdensome for them to retain what they had patiently toiled for. (48-49)

As for the false philosopher, he lacks the awareness "of the purpose for which philosophy is pursued" (49). Thus, whether because of negligence, easygoingness, self-indulgence or superficiality, the philosophical exercise may result in a sterile endeavor, failing to touch life, to reach out beyond itself and foster happiness.

Just as philosophy may be experienced in this distorted and diminished way, so, conversely, it may happen that a most evolved member of the communal organism remain unacknowledged—and even be ostracized. He might be a prince, could wisely lead others in the ways of happiness, and yet it may be that "no use is made of him" (49). The city bears its own *arkhe*, its own ruling principle in its midst, yet cannot recognize it. The "fact that he is of no use to others," notes al-Fārābī, "is not his fault but that fault of those who either do not listen or are not of the opinion that they should listen to him" (49). Here is exposed at once the impotence of *logos*, which can always remain unheard and cannot simply impose itself on circumstances, and the fragility of the philosopher, always vulnerable to misrecognition, suspicion, hostility, and ultimately to the charge of futility.[23]

The prince both possible and unnecessary: this is the human being in his or her most magnificent self-realization—tenuously possible, certainly unlikely, most frequently not requested. Indeed, this scene struck the ancients (as well as al-Fārābī himself) as rather unexceptional. It is a scene of risk and solitude, where communication is impeded

[23] This theme is recurrent in Plato's *Republic*, most notably in Book VI (*passim*, but in particular the discussion leading to the image of the city as a ship [487b-489c] and that of the philosopher seeking refuge from adverse circumstances, like someone in a storm [496d-e]), but also in Book IX (ending with Socrates' invitation to care for the city that may not be anywhere on this earth, but inside oneself and reflecting the sky above [592a-b]). Consider, furthermore, the ambiguous ending of Aristotle's *Nicomachean Ethics* Kappa, unstably bringing together, in the figure of the wise one, communal belonging and self-sufficiency, political engagement and self-transcendence of the human (indeed, the most accomplished human being is identified with the beyond-human, that is, with the divinity of *nous*). These problems are also amplified in the *Politics*, where the excellent political animal is shown to be at the limit (i.e., on the margins) of political association, because of the self-sufficiency making him/her resemble a god (1253a25-29, 1284b26-34). At its best, the best of political animals seems to overcome itself as an animal. Such a being may neither be expelled from the city nor be subjected to rule, but is naturally the ruler, according to Aristotle. Al-Fārābī echoes this view in *The Virtuous City,* XXVIII.

and precious resources remain untapped—as if the city (which still, with its structures and institutions, crucially contributed to the coming to be of such a being), were not ready for her, not ready to need her, to acknowledge her and its own need for her.

And yet, the commentator ends celebrating the felicity of such a being nevertheless. Even as the radiance of the prince should remain hidden to his fellow citizens, his beauty invisible, his treasures unimagined, still:

> the prince or the *imam* is the prince and *imam* by virtue of his skill and art, regardless of whether or not anyone acknowledges him, whether or not he is obeyed, whether or not he is supported in his purpose by any group…. [N]either the *imamate* of the *imam*, the philosophy of the philosopher, nor the princeship of the prince is done away with by his not having tools to use in his activities or men to employ in reaching his purpose. (49)

As a counterpoint to the earlier focus on the worldly, political, altogether phenomenal conditions allowing for human realization, in this conclusion the *magister secundus* recalls an irreducible experience of silently gathered interiority, inappearance, reserve.[24] Carried in the body of the philosopher, guarded and cultivated there, the work of the invisible disseminates itself in the world.

[24] Again, the figure of the hidden prince in al-Fārābī's meditation can ultimately be traced back to the solitary god of *Nicomachean Ethics* Kappa, or even to the "private man" who takes care of his own life, indifferent to glory and reputation (this would be the life chosen by Odysseus, finally healed from his desire for recognition, according to Er the *angelos* at the end of Plato's *Republic* [620c-d]). This will prove to be a fecund suggestion. Suffice it to think of the reflections on individuation and self-awareness by Abū al-Barakāt al-Baghdādī, or of Ibn Bājja's focus on the estranging character of politico-philosophical excellence, making one a foreigner in one's own homeland (*The Rule of the Solitary* [*Tadbīr al-mutawaḥḥid*]).