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Ibn Khaldūn's Narrative of the History of Arabic Logic: Structural Transformation and Pedagogical Critique

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Abstract

This article examines Ibn Khaldūn's discussion of logic in the *Muqaddimah* from the perspective of the history of Arabic logic. The primary material analyzed is drawn from the sections on logic and theology (*kalām)* in the sixth chapter of the *Muqaddimah*, which is devoted to the classification of the sciences. In these sections, while tracing the history of logic from its origins in the Greek tradition to its reception among Islamic philosophers, Ibn Khaldūn also highlights the engagement with logic by theologians. Within the narrative directly concerning logic, Aristotle's *Organon* occupies a central position; Ibn Khaldūn approaches the historical trajectory of Arabic logic by distinguishing between periods that 'followed the *Organon*' and those that 'departed from the *Organon*.' Conversely, his narrative on theology reveals that earlier theologians initially maintained a distance from logic due to the internal proofs, axioms, and methodological frameworks of their own discipline. However, this distance was bridged after Abū Bakr al-Bāqillānī (d. 1013), demonstrating that, along with al-Ghazālī (d. 1111) and Fakhr al-Dīn al-Rāzī (d. 1209), theologians effectively operated as logicians in practice. Notably, Fakhr al-Dīn al-Rāzī is identified as a pivotal agent in both sections—underscoring his dual role as a theologian who actively employed logic and a logician who structurally transformed the content of the discipline.

Keywords: Organon, history of Arabic logic, relationship between kalâm and logic, Aristotle, Avicenna, Fakhr al-Dīn al-Rāzī.

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1. Introduction

Ibn Khaldūn (d. 1406) wrote a specialised treatise on logic and examined it, much like other sciences, in a distinct sub-chapter of the *Muqaddimah*, demonstrating its historical development and content. In the sub-chapter on theology (*kalām*), he also addressed the role of logic in the history of Islamic theology. Thus, he presented a compelling narrative that is valuable for contemporary researchers studying history of Arabic logic (see, for example, Ditmarsch, 2026, pp. 397-414; Durusoy, 2025, pp. 366; Madkour, 1934, pp. 245; Öner, 1996, pp. 24; Özpilavcı, 2017, pp. 155; Street, 2013, pp. 61-63; Yıldırım, 2021, pp. 502-536). While one part of this narrative addresses the emergence of logic in the Greek philosophical tradition and its subsequent development within the Islamic world, another part discusses its transformative impact on the methodology of theology (Street, 2013, ss. 61-63). Based on the content of these sections, it is clear that the author had a meticulous interest in the nature and history of logic.

The Muqaddimah has been regarded as a book on the history of the word, and/or as an encyclopaedia of the sciences (Ditmarsch, 2026, s. 399; Görgün, 1999). In the section of the work concerning logic, Ibn Khaldūn carefully presents the flowering of logic in the hands of Aristotle (d. 322 BCE) and the contents of the *Organon*. He then recounts the history of Arabic logic, focusing on the parts of the *Organon*.[1] In the section of theology, he illustrates how logic secured its place in the history of theology due to the scholars' increasingly favourable attitude towards it. Below, I will examine both sections of the *Muqaddimah* under separate headings and evaluate the resulting narrative of the history of Arabic logic in light of contemporary works. Following Ibn Khaldūn, I will first recount the internal development of logic and then its course within the history of Islamic theology.

2. The History of Arabic Logic as "The History of the *Organon*" and "The History of Moving Away from the Organon"

In the section on the rational sciences in the sixth chapter of the *Muqaddimah*[2], Ibn Khaldūn devotes a significant amount of space to logic relative to fields such as geometry, astronomy and medicine. Having elucidated the nature, purpose and function of logic, he provides a comprehensive overview of the history of this discipline in both the Greek and Islamic worlds, focusing the parts of the *Organon*. In explaining the content of logic, he highlights its critical role in the acquisition of knowledge. First, he highlights the importance of perceivable things as fundamental to perception *(al-asl fī al-idrāk)* and details the stages of the occurrence of human knowledge, from the senses to the intellect's abstraction. This is because universal knowledge, unique to humans, is attained through the processes of abstraction (*al-tajrīd*) and rational thinking (*al-nazar*) (İbn Haldūn, 1401, pp. 1136-1137).

According to Ibn Khaldūn, who elucidates the stages of abstraction and how the universal form of knowledge is acquired by the human intellect up to the levels of acquiring species, genus, and substance during these stages, the faculty of discursive thought (*al-fikr*) is employed to attain sought-after knowledge (*al-matlūbāt*) either in conception (*al-tasawwur*)—for the purpose of combining universal forms in a manner corresponding to external entities—or in assent (*al-tasdīq*)—in such a way that a judgment can be rendered about a thing. However, during this process, the faculty of discursive thought may operate through either valid or corrupt methods. Distinguishing the valid among these methods from the corrupt is possible solely through the canons of logic. Having thus highlighted the function and position of logic as a regulatory corpus of rules (*qānūn al-mantiq*) in intellectual processes, Ibn Khaldūn proceeds to recount the emergence of this discipline in the ancient Greek period (İbn Haldūn, 1981, p. 1137).

As mentioned previously, Ibn Khaldūn while presents his own narrative of the history of Arabic logic, he places the *Organon* at its centre. In doing so, and discussing the adventure of the *Organon* in both the Greek and Islamic worlds, he explains how the corpus was shaped by Aristotle and elaborated upon by Islamic philosophers. He broadly characterises the development of Arabic logic in terms of two distinct periods: "The phase in which the *Organon* was

[1] Ahmet Arslan has comparatively discussed the views of Ibn Khaldūn and Aristotle on logic (Arslan, 1989, ss. 34-52, 2008). However, Ibn Khaldūn's narrative has not been interpreted by testing it against the accumulated knowledge provided by contemporary studies on the history of Arabic logic. Yet, there are aspects of Ibn Khaldūn's views—both in terms of historical matters and the content of logical subjects—that require testing and critique. In this study, I will therefore take Arslan's article into account where deemed necessary by referencing his presentation and interpretations of the subject. However, my primary focus will be on analysing the content of the narrative in question to determine whether it aligns with historical reality.

[2] In this article, I adhere to the widely regarded most reliable edition of the *Muqaddimah* by Ali Abd al-Wahed al-Wāfi, while also drawing upon other editions to highlight significant differences and utilise related passages. Although the work was translated into Ottoman Turkish by Pirizade Mehmed Sahib Efendi (d. 1746) and Ahmed Cevdet Paşa (d. 1845), with the former omitting the sixth chapter devoted to the sciences, I consult Cevdet Paşa's text side with the English and Turkish translations by Rosenthal and Uludağ respectively, to elucidate the portions discussed (Cevdet Paşa, 2015; Görgün, 1999; İbn Haldûn, 1958, 1981, 2011; Pîrîzâde, 2015).

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followed" and "the phase in which a departure from the *Organon* occurred". He refers to the foundational figures of logic in the Greek world as the *mutaqaddimūn* (the ancients/earlier scholars/predecessors) and includes the Islamic philosophers al-Fārābī (d. 950), Avicenna (d. 1037) and Averroes (d. 1198) as far as I can see. Conversely, he treats figures subsequent to the Avicenna and Averroes axis as the *mutaakhkhirūn* (the later scholars), attributing a distinct character to each period. While positioning the works of earlier Islamic logicians as a natural part of the historical trajectory of the *Organon*, he characterises subsequent developments as a departure from it. From this perspective, Ibn Khaldūn divides the general history of logic—flowing toward his own intellectual and cultural sphere—into two distinct parts: "The period from its inception until Avicenna/Averroes" and "the post-Avicenna/Averroes period." Therefore, to better comprehend his narrative of the history of Arabic logic, it is also necessary to touch upon his narrative of the history of Greek logic.

In this regard, after stating that the initial developments concerning logic consisted merely of primarily, scattered pieces of information in the hands of the early *mutaqaddimūn/antique* philosophers, at a time when the methodology of this discipline had not yet been established and its issues had not matured, he turns to the foundational role of Aristotle (d. 322 BCE). In an environment where logic had not yet been established and its problems had not been defined, Aristotle emerged in Greece. He organised the issues and parts of this discipline and established it as the foundation of the philosophical sciences. Furthermore, he wrote independently on the subject and its problems; the work he wrote to define the problems of logic is known in the Islamic world as "the text (naṣṣ/faṣṣ)",[3] and due to this foundational role, he is known as the "First Teacher".

Ibn Khaldūn presents the books of the *Organon* and their contents virtually in accordance with the order of importance in his mind. Of this logical corpus consisting of eight books, three pertain to the form of the syllogism, whereas five deal with its matter.[4] While the *Categories* (*Kitāb al-Maqūlāt*), *On Interpretation (Kitāb al-'Ibārah),* and *Prior Analytics (Kitāb al-Qiyās)* are concerned with the form of the syllogism, subsequent five books the *Posterior Analytics (Kitāb al-Burhān)*, *the Topics (Kitāb al-Jadal), Sophistical Refutations (Kitāb al-Safsatah)*, *Rhetoric (Kitāb al-Khitābah)*, and *Poetics (Kitāb al-Shi'r)* deal with its matter.

The fact that, when introducing these books, Ibn Khaldūn treats the contents of the *Posterior Analytics*, *Topics*, and *Sophistical Refutations* — which pertain to demonstration (*al-burhān*), dialectic, and sophistry— in greater detail, indicates that he considers these subjects to be of higher priority in the field of logic. Indeed, he emphasises the theory of demonstration in particular and notes that attaining certainty in inference — the primary goal of demonstrative syllogism — relies on specific conditions, such as the premises being essential (*al-zhātī*) and primary (*al-awwalī*). Furthermore, he stresses that the issue of definition is also addressed in the *Posterior Analytics* in connection with the aim of demonstration because certainty rooted in the correspondence between the definition and the defined object constitutes the knowledge sought in logic. He

[3] Both terms appear in different editions of the *Muqaddimah*. The word "naṣṣ" is found in al-Wāfī's edition, which is considered reliable, as well as in the editions of Dār al-Rāid al-ʿArabī and Darwish al-Juwaydī. The word "fass", on the other hand, appears in the edition of Abd al-Salām al-Sheddādī. Furthermore, Ahmed Cevdet Paşa, who translated the work into Ottoman Turkish, also uses the term "fass". Uludağ's translation includes both "nass" and, in parentheses, "fass". Rosenthal, who translated the word into English as "the text", pointed out that the word in the Arabic text is "al-fass". However, he notes that he does not know from whom Ibn Khaldūn took this expression (perhaps Averroes?), and that the word was not widely used as the name of the *Organon* (Cevdet Paşa, 2015, p. 194; Ibn Khaldūn, 1958, p. 139, 1981, p. 1138, 1982, p. 490, 1995, p. 475, 2011, p. 866).

[4] In all the Arabic editions I have referred to—with the exception of the al-Sheddādī's edition—and in Cevdet Pasha's translation, four of the books are presented in relation to the form of syllogism and four in relation to its matter. (Ibn Khaldūn, 1981, p. 1138, 1982, p. 490, 1995, p. 475). Accordingly, if the work is considered to comprise eight books, the fourth book, *Posterior Analytics* (*Kitāb al-Burhān*), must also be regarded as pertaining to form, but the falsity of which is self-evident. Indeed, a few lines later, Ibn Khaldun himself cites *Prior Analytics (Kitāb al-Qiyās)* as the final book on form. As far as I can discern, this error stems from a more fundamental problem in the manuscripts of the work. Based on the fact that only one of the four manuscripts he consulted had the word 'three' written in as a correction for an erased word, Rosenthal states that three of the books pertain to form and five to matter. Furthermore, he suggests that this may be an error on the part of Ibn Khaldūn himself, who conceived the corpus as comprising nine books, probably because he also had Porphyry's *Eisagoge* in mind. In Sheddādī's critical edition of the text, four books deal with the form of the syllogism and five with its matter, including the *Eisagoge* among those related to form. In the modern Turkish translation of the work, Süleyman Uludağ exercised discretion by stating, without offering an explanation, that 'four (or five) of them pertain to matter'. Likewise, without offering any explanation, Ahmet Arslan presented the first three works as pertaining to the form of the syllogism and the last five as pertaining to its matter. (Arslan, 2008; Ibn Khaldūn, 1958, p. 139, 1982, 2005, p. 92, 2011, p. 886).

then points out that the ancient philosophers (*al-mutaqaddimūn*) specifically allocated the topic of definition to the *Posterior Analytics* as it was necessary for their quest for certainty in knowledge. Thus, he provides the philosophical and logical justification for addressing definition within the theory of demonstrative syllogism (*al-burhān*) — the core subject of the *Posterior Analytics*. The significance of Ibn Khaldūn's emphasis becomes evident when considering a shift in the history of Arabic logic that he mentions later. He states that, at a certain stage in the Arabic tradition, the placement of the issue of definition in logical texts changed, causing a structural deviation in the history of logic (Ibn Khaldūn, 1981, p. 1138).

Having introduced these eight books by Aristotle, he states, without mentioning his name, that Porphyry's (d. 304) independent work on the five universals was also added to the corpus, bringing the total number of books to nine. He also mentions that early philosophers in the Islamic world wrote their own logical works based on this framework:

> These are the eight logical books of the early scholars (*mutaqaddimūn*). Once this discipline had been established and organised in this manner, the Greek philosophers deemed it necessary to explain the five universals that yield conception (*al-taṣawwur*) and included a treatise specifically devoted to this topic as an introduction to the art (*al-fann*). Consequently, this discipline began to be examined in nine books. All nine of these books were translated within the Islamic community (*fī al-millah al-Islāmiyyah*). The Islamic philosophers (*falāsifat al-Islām*) popularised them through commentaries (*bi al-sharḥ*),[5] as did al-Fārābī, Avicenna and Averroes, one of the Andalusian philosophers. Indeed, Avicenna authored a work titled *Kitāb al-Shifā'* (*The Book of Healing*), in which he compiled all seven philosophical sciences (Ibn Khaldūn, 1981, p. 1139).

As can be seen in the quotation above, Ibn Khaldūn, whilst mentioning the approach to logic centred on the *Organon* adopted by the early philosophers—including al-Fārābī, Avicenna and Averroes—describes the new attitudes of the later scholars, which were to bring about a break and a sturctural transformation in the history of Islamic logic, as follows (See also, Arslan, 2008):

> Subsequently came the late scholars (*muta'akhkhirūn*). They altered the terminology of logic (1). They extracted the topic of definitions and descriptions—the fruit of the five universals—from *Kitāb al-Burhān (Posterior Analytics)* and incorporated it into the inquiry on the five universals (2). Since the logician examines *Kitāb al-Maqūlāt (Categories)* not per se (*bi-al-dhāt*) but accidentally (*bi-al-'araḍ*), they excluded it from logic (3). Furthermore, they appended the topic of conversion (*al-'aks*) to *Kitāb al-'Ibārah (On Interpretation)* because it is connected to the subject of propositions in certain respects (4) [even though, in the works of the predecessors, it was included in *Kitāb al-Jadal (Topics)* (Ibn Khaldūn, 1958, p. 142, 1995, p. 476, 2005, p. 94, 2005)]. Thereafter, they discussed the syllogism not in terms of its matter, but generally insofar as it yields the sought-after knowledge. They abandoned the examination of the syllogism with respect to its matter. Previously, this subject was treated in five books, namely *al-Burhān (Posterior Analytics), al-Jadal (Topics), al-Khitābah (Rhetoric), al-Shi'r (Poetics), and al-Safsatah (Sophistical Refutations)* (5). Although some occasionally continued to compose very minor works on this subject, they neglected it as if it were non-existent (6). Yet, the subject matter of these five books constitutes the essential and principal core of this discipline. Subsequently, they began to expound at length upon the matters they had instituted themselves; since they began to treat this art not as an instrument of the sciences but as an autonomous discipline in its own right (*bi-ra'sihī*), its topics expanded and proliferated (7) (İbn Haldūn, 1981, p. 1140).

Accordingly, based on Ibn Khaldūn's narrative in this paragraph, the modifications introduced by post-Avicennan philosophers—referred to as the *muta'akhkhirūn/late scholars*—can be identified as follows:

- The terminology of the logic was altered (1).
- The placements of the topics of definition and conversion within the books/sections of the *Organon* were altered (2, 4).
- While the Categories was entirely removed from circulation along with its subject matter, the five books treating the matter of the syllogism (five arts/*al-sināah al-khams*) were no longer written as standalone treatises, and their topics began to be reflected only very weakly in newly composed texts. Consequently, some of the original content of the *Organon* was withdrawn from circulation (3, 5).
- New topics were introduced, causing the discussions related to logic to be excessively prolonged; thus, the discpline of logic was transformed from a tool for sciences into an autonomous science in its own right (7).
- Consequently, a new style of writing emerged in logic and logical enquiries became almost exclusively restricted to the form of the syllogism. This was because the examination of the matter of the syllogism was dropped from the agenda through the abandonment of

[5] In Cevdet Paşa's translation, the terms 'sharh u tavdīh' and 'talkhīs u tankīh' appear, whilst in Rosenthal's translation, the terms 'commentaries and abridgements' are used. (Cevdet Paşa, 2015, p. 192; İbn Haldûn, 1958, p. 142).

the books that contained this subject. (6).

According to this narrative, these interventions — namely, altering the structural placement of logical content within books, abbreviating it occasionally, and introducing novel topics — removed logic from its status as an instrumental science, transforming it into an autonomous, formal discipline. This fundamentally altered its nature and function. This denotes a highly significant transformation involving terminology, textual arrangement and content. The phase in which this transformation occurred must undoubtedly mark a critical turning point in the history of Arabic logic. Consequently, the virtual cessation of works structured according to the *Organon* arrangement after the logical section *(mantiqiyyāt)* of Avicenna's *al-Shifā'* in the Eastern Islamic world indicates that scholarly interest and points of emphasis regarding logical topics shifted progressively over time (for an exceptional figure such as al-Tūsī, see Özpilavcı, 2021, pp. 32-45).

Ibn Khaldūn also provides information regarding the history and perpetrators of this immense transformation. The following statements demonstrate that he includes Avicenna and preceding Arabic logicians within the group of predecessor philosophers (*mutaqaddimūn*) prior to this shift. For, according to him, the transformation in question was initiated by figures who lived after Avicenna, serving as his commentators and critics:

> The first person to do this was Imam Fakhr al-Dīn Ibn al-Khatīb [al-Rāzī]. After him came Afḍal al-Dīn al-Khūnajī. The works that the Easterners currently rely upon are his [al-Khūnajī's] books. He had a comprehensive work titled *Kashf al-Asrār* on this art, which is a lengthy treatise. He also had a condensed work titled *al-Mūjaz*, which is a fine work for instructional purposes. Furthermore, he composed another concise work of about four folios titled *al-Jumal*, in which he treated the core essentials (*al-majāmi'*) and fundamental principles (*al-u'ṣūl*) of this discipline. Consequently, this work remains in circulation among students of this science, who continue to benefit from it. In this manner, the books and method (*al-ṭarīqah*) of the predecessor philosophers (*mutaqaddimūn*) disappeared as if they had never existed—even though, as we have explained, their books are brimming with the fruits and utility of logic (Ibn Khaldūn, 1981, p. 1141).

If we interpret this quotation in conjunction with our preceding discussion, we can infer that the works mentioned here must be those that supplanted the *Organon* in the history of Arabic logic. For, according to Ibn Khaldūn, the very works of these post-Avicennan logicians embody the transformations that displaced the *Organon*. Consequently, in terms of the shifts detailed in Ibn Khaldūn's narrative, we can assert that two pivotal philosophers in post-Avicennan history of Arabic logic are Fakhr al-Dīn al-Rāzī (d. 1209) and Afḍal al-Dīn al-Khūnajī (d. 1248).

This information anticipates the findings of contemporary research in Arabic philosophy and logic, pointing to a critical turning point in the history of Islamic logic and the key figures involved in this rupture. At this juncture, we can confidently assert that Fakhr al-Dīn al-Rāzī was a pivotal figure in the critique of Avicennan logic. He exposed the aspects of Avicennan logic that were considered flawed, and subsequent logicians then concentrated on refining and completing them (Kuşlu, 2017; Street, 2013, pp. 151-169). Furthermore, it is well established that the literature developed during the post-Avicennan period followed al-Rāzī's works not only in terms of structural arrangement and content, but also regarding issues such as the possibility of knowledge and the critique of definition theory in Avicennan logic (Eichner, 2009, pp. 30-46; Türker, 2013, pp. 17-40). On the other hand, we can observe that al-Khūnajī took his place in the history of Arabic logic as the first major figure who transformed Avicennan logic through some issues such as subject matter of logic, modal propositions, and various forms of inference. And his *Kashf al-asrār*—mentioned by Ibn Khaldūn—served as the primary source of this transformation. This work exerted a profound influence on subsequent logicians and dictated the content of their compositions. Consequently, we can assert that the Arabic logical tradition was never the same after *Kashf al-asrār* (al-Khūnajī, 1389, [El-Rouayheb's Introduction] pp. xlix, xxvı-l; Street, 2014, pp. 454-513).

Nevertheless, we contend that the roots of these changes mentioned by Ibn Khaldūn can be traced to logicians prior to those he explicitly names. As far as we have determined, some of these modifications began to manifest as early as the works Avicenna himself. It is particularly noteworthy that *al-Ishārāt wa-al-Tanbīhāt*—one of the philosopher's latest works, which shaped the subsequent philosophical tradition—differs from his earlier *al-Shifā'* in terms of language, manner, structural arrangement, and even the approach to the subjects treated, and that this divergence marks the inception of several of the changes listed by Ibn Khaldūn.

When we evaluate the transformations reported by Ibn Khaldūn through this lens, we can see that some of these changes manifestly originated in Avicenna's *al-Ishārāt*, and indeed that certain crucial steps were taken as early as in *al-Shifā'*. While the problem of the Categories is entirely absent from *al-Ishārāt*, Avicenna appears to have already dismissed this work and its underlying doctrine from a logical standpoint even within the *Kitāb al-Maqūlāt of al-Shifā'*, which he had composed in accordance with Peripatetic traditon:

> Even if a student of logic is unaware of the ten categories, he can still proceed to learn propositions and their divisions, syllogisms, definitions and types of definition, matters of the syllogism, demonstrative and non-demonstrative statements, and their genera and species, once he have learned the simple terms we have explained to them, along with the nature of the noun and the verb (Ibn Sīnā, 2010, pp. 3-4).

Thus, it becomes clear that even while writing *al-Shifā'*, Avicenna held a view regarding the relationship between the categories and logic that did not conform to the Peripatetic tradition. It is evident that Avicenna did not compose the *Categories* out of a logical necessity; indeed, it is noted that he designed his philosophy in this manner from his early works onward. According to Avicenna, knowledge pertaining to the categories belongs partly to metaphysics, partly to psychology, and partly to linguistics (Alper, 2009, pp. 80-82, Ibn Sīnā, 2010, pp. 3-4).

Furthermore, it should be noted that, works regarding the matter of the syllogism are not included as independent sections in *al-Ishārāt*, but merely demonstration (*al-burhān*) and sophistry (*al-safsatah*) are incorporated as subsections under. Additionally, the theory of definition is appended to the five universals, while the topic of conversion is annexed to propositions (Durusoy, 2003, pp. 181-193; Ibn Sīnā, 2005, pp. 4, 13-16, 40, 70-78). In conclusion, we can assert that the shifts mentioned by Ibn Khaldūn actually originated with Avicenna himself. Indeed, several contemporary scholars—such as Ibrāhīm Madkour, Necati Öner (citing Madkour), and Tony Street—likewise subscribe to this view (Madkour, 1934, p. 245; Öner, 1996, p. 18; Street, 2013, p. 93). All these changes must have led to the gradual transformation of logic into a formal discipline, devoid of content. This is a situation that Ibn Khaldūn himself explicitly articulates in his discussion of the relationship between logic and theology (*al-kalām*), as will be addressed below.

3. History of Arabic Logic as Part of the History of Theology

Other accounts by Ibn Khaldūn that contribute to the history of Arabic logic consist of passages in which he discusses the relationship between logic and theology. Some of these comprise merely a few paragraphs located within the logic section of certain editions of the *Muqaddimah*. Others appear in the section where theology is discussed. In these sections, Ibn Khaldūn appears to consider logic to have played a role in the historical trajectory of theology. He even treats the history of theology as having two distinct periods: one prior to the adoption of logic, and one following it. However, given that theologian-logicians such as Fakhr al-Dīn al-Rāzī also influenced logic, as discussed in the preceding section, it can be asserted that the two disciplines advanced through mutual transformation in the history of Islamic thought.

First, let us examine the passages that appear in the logic section of only certain editions of the text. Here, Ibn Khaldūn brings to our attention the attitude of the scholars—most notably the theologians (mutakallimūn)—toward logic, once again employing the distinction between the *mutaqaddimūn* and the *muta'akhkhirūn*.[6] This section is remarkably valuable in that it presents the scholarly rationales underlying the gradual legitimation of logic within the religious sciences in the Islamic tradition. By virtue of this information, we are afforded the opportunity to observe both why logic came to be utilised in the religious sciences and how this new state of affairs transformed logic itself.

According to Ibn Khaldūn's narrative, the early theologians (*al-mutaqaddimūn*) strongly opposed to the teaching of logic. However, subsequent scholars (*al-muta'akhkhirūn*), such as al-Ghazālī (d. 1111) and Fakhr al-Dīn al-Rāzī (d. 1209), were more tolerant of adopting certain aspects of this science. After this period, most scholars followed these two figures, while those who adhered to the view of earlier scholars remained few in number. After recounting this historical transformation, Ibn Khaldūn proceeds to explore the intellectual dimensions of this isssue, stating that he will elucidate the purposes (*al-maqāṣid*) and nuanced aspects (*al-nukāt*) underlying the scholars' rejection and acceptance of logic. Three main themes emerge from the justifications he provides: "Proofs (*al-dalāil*)" used in the theology; "foundational principles and axioms underpinning these proofs (*al-kawānīn* and *al-usūl*)"; and the methodological approach towards the proofs. First, Ibn Khaldūn states that the early theologians' distance from logic stemmed from their own proofs, which he enumerates as follows:

> Since the theologians (*al-mutakallimūn*) established the science of theology to support the articles of faith with rational proofs, their method in this regard relied upon the specific arguments they set forth in their own works. For instance, their proof for the temporal creation of the

[6] Hilmi Demir draws attention to the fact that, in the context of Islamic theology, the term *muta'akhkhirūn* is used for the periods encompassing al-Ghazālī, Fakhr al-Dīn al-Rāzī, and their followers—when logic began to be utilized—and for the period of those who came after them. Accordingly, although we do not fix the distinction between *mutaqaddimūn* and *muta'akhkhirūn* as precise and definitive division, we employ it to designate periodic turning points (see, Demir, 2007, p. 86; Ibn Khaldūn, 1981, p. 1082).

> universe (*ḥudūth al-ʿālam*) by demonstrating the existence of accidents (*al-aʿrāḍ*) and their temporal origination (*ḥudūth*), the impossibility of bodies existing independently of accidents, and the necessary temporal creation of whatever cannot exist apart from accidents; their affirmation the oneness of God (*al-tawḥīd*) via the argument from mutual exclusion (dalīl al-tamānuʿ); and their proof of the Eternal Attributes through the four comprehensive attributes (*al-jawāmiʿ al-arbaʿah)*[7] by drawing upon the method of analogy from the observed to the unobserved (*qiyās al-ghāʾib ʿalā al-shāhid*)—along with the other proofs they treated in their books—all exemplify this reliance… (Cevdet Paşa, 2015, p. 197; Ibn Khaldūn, 1958, p. 144, 1996, p. 477, 2005, p. 95, 2011, p. 888).

Thus, a) the temporal creation of the universe, b) the oneness of God, and c) the eternity of His attributes constitute the subjects proven; whereas accidents and their temporal origination, the dependence of bodies upon accidents, the argument from mutual exclusion (*dalīl al-tamānuʿ*), and the four comprehensive attributes (*al-jawāmiʿ al-arbaʿah*) serve as the proofs employed within this inference. As Ibn Khaldūn likewise emphasises, these represent the specific proofs utilised by the theologians while deliberating their own issues. After enumerating these proofs, he lists the foundational principles and axioms upon which these very proofs are constructed:

> Then, they established these proofs by setting as their foundation principles and axioms—which served as premises for these arguments—such as the affirmation of the indivisible atom (*al-jawhar al-fard*), the indivisible instant of time (*al-zamān al-fard*), and the void (*al-khalāʾ*); the denial of the natures of essences and their conceptual compositions; the assertion that an accident cannot endure for two moments; the affirmation of the mode (*al-hāl*), which is neither existent nor non-existent but merely an attribute of an entity. Along with other such principles upon which they constructed their specific proofs.
>
> Subsequently, Shaykh Abū al-Ḥasan al-Ashʿarī, Qāḍī Abū Bakr al-Bāqillānī and Usthādh Abū Isḥāq al-Isfarāyīnī reached a consensus that the proofs for the articles of faith are conversible, in the sense that invalidating a proof invalidates the object indicated by that proof (*al-madlūl)*. Consequently, Qāḍī Abū Bakr held that the proofs held the same status as the articles of faith themselves and that undermining the proofs was tantamount to undermining the dogma, since the articles of faith were based on these very proofs (Cevdet Paşa, 2015, p. 197; Ibn Khaldūn, 1958, p. 144, 1996, p. 477, 2005, p. 95, 2011, p. 888).

The elements enumerated in this paragraph constitute the axiomatic foundation and premises of the proofs cited in the preceding quotation. Following the listing of the proofs of theology above, the principles and axioms that serve to establish, validate, and reinforce these arguments are set forth here; subsequently, with the mention of the doctrine of the conversability of proofs (*inʿikās al-adillah*), the framework of theology's distinct logic is delineated, so to speak. Consequently, the affirmation of the void, the indivisible atom, the indivisible instant of time, the nature of accidents, and the mode—along with the corresponding rejection of Peripatetic elements such as the natures of essences and their conceptual compositions—form the core tenets of the logic of theology. This demonstrates to us that a portion of the foundational principles in the theological method consists in rejecting the elements of Peripatetic logic that are incompatible with its own axioms. Indeed, the rejection of the nature of essences excludes operations of logic anchored in essential attributes (*al-dhātiyyāt*), ranging from the theory of definition to demonstrative syllogism (*al-qiyās al-burhānī*). In the continuation of the text, Ibn Khaldūn clarifies for his reader that these fundamental principles of theology are incongruous with the method of logic.

Logic enables the intellect to establish a connection with external reality by employing conceptual composition (*al-tarkīb al-ʿaqlī*) through the natural universals (*al-kulliyyāt al-ṭabīʿiyyah*) that correspond to this composition. Hence, the mental concepts known as the 'five universals' (*al-kulliyyāt al-khams*) must conform to external entities. However, according to the theologians, both the mental universal concepts and their external natural existences are impossible. After stating these points, Ibn Khaldūn meticulously explains what the theologians employed in place of the mental universal, and into what kind of discipline logic would be transformed were this substitute to be accepted within logic:

> According to the theologians, the universal (*al-kullī*) and the essential (*al-dhātī*) are merely mental considerations (*al-iʿtibār al-dhihnī*) that lack any correspondence to external reality. Alternatively, according to another view, the universal and the essential are merely modes (*al-ḥāl*). In that case, the five universals, the definitions based on them, and the ten categories would be invalidated. Furthermore, as the essential accident is invalid, this likewise invalidates the essential necessary propositions, which logicians require for demonstration. The rational cause (*al-ʿillat al-ʿaqliyyah*) and *Kitāb al-Burhān* are also invalidated, as are the dialectical topics forming the core of *Kitāb al-Jadal*, since these rely on the middle term joining the two terms in a syllogism. Thus, all that remains is formal syllogism (*al-qiyās al-ṣūrī*). As for definitions, only

[7] These are explained as "power, knowledge, life, and will (*al-kudrah, al-ʿilm, al-hayāh and al-irādah*)" (Ibn Khaldūn, 1958, p. 144, 2011, p. 889).

> those that are coextensive and coexclusive with the defined things remain—neither so general as to include non-members, nor so narrow as to exclude members. Grammarians call this "al-jam' wa'l-man'", and theologians "al-tard wa'l-'aks (Ibn Khaldūn, 1958, p. 145, 1996, p. 477, 2005, p. 96, 2011, p. 889; Cevdet Paşa, 2015, p. 198).

Stating that the theologians accepted neither the mental universal nor the natural universal to which it corresponds in external reality, Ibn Khaldūn thus demonstrates that what lay behind their rejection of logic was the very principles that grounded their own specific proofs. According to the early theologians, since the concept of essentials was incompatible with the foundational principles of theology, the understanding of definition and demonstrative knowledge derived from them was likewise not adopted. Thus, Ibn Khaldūn reveals that the foundational principles of logic were rejected by the early theologians precisely on the grounds of their incongruity with their own axioms.

On the other hand, Ibn Khaldūn observed that if the foundational principles of theology are adopted in place of the principles of logic, the theory of definition provided by logic, demonstrative syllogism, and even dialectic would disappear. In this scenario, all that would remain are definitions and terms lacking semantic unity and possessing merely co-extensive terms in a definiton, alongside formal syllogism composed of propositions expressing only mental considerations (*i'tibārāt*) rather than essential properties. Therefore, logic could not sustain it's own existience alongside the foundational principles of theology; because—according to this line of thought—a system based natural universals and their mental counterparts in conceptual composition, which in turn rest upon the axiom of essentiality in Peripatetic philosophy, cannot be constructed upon the principles of Islamic theology. Therefore, it is clear that, for the early Muslim theologians who considered the attributes of things to be mental considerations rather than essential properties, the principles of theology and logic could not coexist. Indeed, Ibn Khaldūn goes on to express how the disciplines belonging to these two groups would undergo mutual transformation should they accept each other's foundational principles:

> Thus, [when the foundational principles of theology were accepted] the pillars of logic were entirely obliterated. Had we proved these [principles of theology] as we do in the science of logic, we would have invalidated most of the premises of the scholars of theology. This, in turn, would lead to the invalidation of their proofs regarding the faith. This is why the early theologians vehemently opposed the study of logic, considering it to be an innovation (*al-bid'ah*) or even disbelief (*al-kufr*) (Ibn Khaldūn, 1958, p. 146, 1996, p. 477, 2005, p. 96, 2011, p. 889; Pīrīzāde & Cevdet Paşa, 2015, p. 198).

Consequently, Ibn Khaldūn suggests that an irreconcilable conflict exists between the axioms of theologians and those of logic. He argues that theologians' absolute avoidance of logic stems from this conflict. If we were to apply the axioms of theology to logic, the content of logic that covers epistemology and the philosophy of science would be eliminated, leaving only a formal system. This transformation actually corresponds to the shift that Ibn Khaldūn states began with Fakhr al-Dīn al-Rāzī. However, as will be discussed below, in another passage, Ibn Khaldūn does not mention that these figures formalised logic; rather, he states that they accepted logic by adopting its informal content. When we consider the narrative on logic as a whole, a seemingly irreconcilable situation emerges: one part speaks of the formalisation of the discipline, while another part speaks of the acceptance of its informal content. Furthermore, Fakhr al-Dīn al-Rāzī is identified as the agent of both attitudes.

The initial steps from the perspective of jurisprudence (*fiqh*) and especially theology toward this approach, which was consolidated by theologian-logicians such as al-Rāzī (d. 1209) and al-Khūnajī (d. 1248), must have been taken by al-Ghazālī (d. 1111). He devoted his intellectual efforts to the 'revival of the religious sciences.' Indeed, Ibn Khaldūn recounts that following the early theologians whose views and attitudes toward logic were outlined above, a historical transformation occurred with the advent of al-Ghazālī. During this process, scholars accepted the axioms and methods of logic—even to the detriment of the proofs of theology—and went so far as to critique theological methods on the basis of logic. It is precisely from this account that the aforementioned incompatibility arises. (In response to criticisms that these views are incompatible with the history of Islamic theology, see, Türker, 2008, pp. 3-4):

> The later scholars (*muta'akhkhirūn*) who succeeded al-Ghazālī did not accept the principle of the conversability of proofs (*in'ikās al-adilla*); hence, according to them, the invalidity of a proof did not necessarily entail the invalidity of the object indicated by that proof (*al-madlūl*). Furthermore, in their view, the logicians' positions regarding conceptual composition, the reality of natural essences, and their status as universals in external reality were sound. They ruled that logic—even if contrary to certain specific proofs of theologians—was not contrary to the Islamic faith. On the contrary, logic was even adduced to demonstrate the invalidity of most theological premises, such as the indivisible atom, the void, the non-endurance of accidents and other related doctrines. Indeed, they derived inferences regarding the faith through arguments which they rectified via rational demonstration and logical syllogism, apart from these traditional proofs of the theologians. According to them, this situation did not

> harm Sunnī creed in any manner. This is precisely the view of the Imām [Fahreddīn al-Rāzī], al-Ghazālī, and those who followed them (Ibn Haldūn, 1958, p. 146, 1995, p. 477, 2005, p. 97, 2011, pp. 889-890, 2011; Pīrīzāde & Cevdet Paşa, 2015, p. 198).

Thus, a methodological transformation took place after al-Ghazālī: The idea that undermining a proof would necessarily compromise the articles of faith derived from it was rejected. This shift eliminated the risk that the principles of logic, by replacing those of theology, would undermine the proofs based on theological axioms and, consequently, the creed itself. Consequently, theologians no longer feared that the foundational principles of logic would undermine their own theological tenets, and they began to study logic as a result. According to Ibn Khaldūn's account, theologians underwent a transformation across three distinct stages when they rejected the conversability of proofs: a) They accepted natural essences, their existence in external reality and their conceptual compositions in the mind, all of which they had previously rejected; b) they abandoned their theological axioms regarding the indivisible, the void and the nature of accidents; c) furthermore, they began to make inferences about articles of faith using the new proofs offered by logic.

Ibn Khaldūn's narrative, in which theologians abandon their own principles and methodologies in favour of those of logic and even use logical tools to demonstrate theological issues, is striking. While this signifies becoming of theology logico-philosophical discipline, it is difficult to reconcile with the narrative of logic's progressive formalisation outlined in the first section of this paper and a few paragraphs above. It is important to note that the central figure in both of these phenomena is Fakhr al-Dīn al-Rāzī. In this scenario, al-Rāzī would have to be both a logician, transforming logic into a formal discipline abstracted from it's content within the logical tradition, and a theologian, adopting the essentialist content of logic within the Islamic theological tradition.

It has been also observed by some other authors that these sections are not consistent with each other (Street, 2013, p. 251). Whether by eliminating its essentialist content or in spite of it, it is clear that theologians began to take an interest in logic at a certain stage of the history of Islamic theology. Apart from this narrative in the section on logic, Ibn Khaldūn—after recounting in the special part on theology of his book the initial attitudes of the early generations (*salaf*) regarding creed, followed by the emergence of Muʿtazilite and Sunni theologyr—states that the path of Abū al-Ḥasan al-Ashʿarī (d. 935) became widespread, and highlights the decisive role of his successor Abū Bakr al-Bāqillānī (d. 1013) in shaping the methodology of the Ashʿarite school (Ibn Khaldūn, 1981, pp. 1060-1080). The points he emphasises here, in alignment with the above statements, indicate that al-Bāqillānī established the rational premises of the school — namely, such principles as the indivisible atom, the void, the impossibility of an accident inhering in another accident and its inability to endure across two moments of time — and ultimately fortified the school by asserting that the invalidity of a proof entails the invalidity of the indicated object (*al-madlūl*).[8] (Ibn Khaldūn, 1981, pp. 1080-1081). Although Ibn Khaldūn acknowledges that these matters strengthened the school, he also highlights that the persuasiveness and scientific nature of the method used to present these proofs was increasingly seen as inadequate (regarding the explanation of the non-rigorous (*ghayr ṣinā'ī*) nature of the proofs through Ibn Khaldūn's theory of social cohesion (*'aṣabiyyah*) see, Türker, 2008, p. 2). He observes, nonetheless, that the scholars at this stage were not yet intellectually prepared—nor was their awareness of logic sufficiently advanced—to fully embrace it, stating:

> Thus, this path [of al-Ashʿarī] became a complete method and emerged as one of the finest theoretical disciplines and religious sciences. At that stage, however, the formal structure of the proofs occasionally lacked methodological rigor and persuasive form due to the simplicity of the scholars. Furthermore, the science of logic—in which proofs and syllogisms are critically examined—had not yet become widespread within the Islamic community. Even if certain elements of it had emerged, theologians rejected them because they were intertwined with philosophical sciences that were entirely contrary to the creed of the Sharia. Consequently, this discipline [logic] became prohibited among them. Following Qāḍī Abū Bakr al-Bāqillānī came Imām al-Ḥaramayn Abū al-Maʿālī [al-Juwaynī], who adhered to this school and authored *Kitāb al-Shāmil*, elaborating extensively on this subject. He subsequently summarized it in *Kitāb al-Irshād*, which the people accepted as the foundational source for their creed (Cevdet Paşa, 2015; Ibn Khaldūn, 1981, p. 1081).

Accordingly, Ibn Khaldūn commemorates al-Bāqillānī (d. 1013) as the scholar who, following Imām al-Ashʿarī, consolidated the school's method by articulating its foundational principles and proofs in a manner that reinforced the existing paradigm; whereas he recognizes al-

[8] Hilmi Demir and Ömer Türker argue that Ibn Khaldūn's narrative regarding this method—known as inʿikās al-adilla—is inconsistent with the history of kalām, as this view does not appear in al-Bāqillānī's works. Furthermore, they determine that this doctrine belongs not to early Ashʿarites like al-Bāqillānī, but rather to Muʿtazilite scholars such as Abū Hāshim al-Jubbā'ī (d. 916) and Qāḍī ʿAbd al-Jabbār (d. 1025) (Demir, 2007, pp. 86-114; Türker, 2008, p. 19).

Juwaynī (d. 1085) as the figure who paved the way for the emergence of a new approach among the scholars, particularly by expanding the debate on this subject.[9] Thus, he describes how their attitude toward logic transformed if not with al-Juwaynī, then at least afterwards:

> Thereafter, the logical sciences (*al-u'lūm al-mantiqiyyah*) became widespread among the populace. People studied this science, distinguishing it from the philosophical sciences by viewing it solely as a canon and criterion for proofs. Through it, the proofs in philosophy and other sciences were manifested. Subsequently, they began to critically examine the rules and premises established by early scholars of theology. They challenged many of these premises using logical demonstrations that compelled them to do so. These demonstrations were mostly based on the philosophers' doctrines regarding physics and metaphysics (Cevdet Paşa, 2015, p. 103; Ibn Khaldūn, 1981, p. 1081).

Here as well, Ibn Khaldūn points to the theologians' tendency to formalise logic, as they began to view it merely as a 'canon of argumentation.' Accordingly, they came to regard logic as a set of rules that imparts form to proofs independently of their content. Nevertheless, it is noteworthy that Ibn Khaldūn remarks how theologians critiqued the principles of theology using the philosophical demonstration, while simultaneously stating that these very demonstrations were derived from philosohers' theories of physics and metaphysics.

After articulating these logical issues that penetrated into theology, Ibn Khaldūn describes the transformation that emerged in the history of Islamic theology following al-Bāqillānī (d. 1013) with the rejection of the conversability of proofs (*in'ikās al-adilla*):

> Thus, they abandoned to believe that the invalidity of the proof entails the invalidity of the object proven, as Qāḍī Abū Bakr al-Bāqillānī had maintained. Consequently, this method (*al-ṭarīqah*) diverged clearly from the earlier path and came to be known as the method of the later scholars (*ṭarīqat al-muta'akhkhirīn*). On occasion, within this new method, they incorporated refutations of the philosophers regarding points where they differed on articles of faith, viewing the philosophers as adversaries of the creed because they found their doctrines aligned with those of heretical sects. The first to write within the method of theology according to this approach (*'alā hādhā al-naḥw*) was al-Ghazālī, may God have mercy upon him. Imām Ibn al-Khaṭīb [al-Rāzī] followed in his footsteps, and a group of scholars subsequently composed their own works in this manner and leaned toward imitating them (Cevdet Paşa, 2015, p. 104; Ibn Khaldūn, 1981, p. 1082).

Thus, Ibn Khaldūn cites Fakhr al-Dīn al-Rāzī several times as a key figure in the develeopment of Arabic logic. Al-Ghazālī and al-Rāzī were the first logicians to write works based on the "method of later scholars (*ṭarīqat al-muta'akhkhirīn*)". They utilised logic and developed a new theological methodology by writing refutations against philosophers to protect the creed. While it is difficult to gain a clear picture from Ibn Khaldūn's narrative in this section, we can conclude that, on the one hand, logic was being formalised and, on the other, kalām was becoming more philosophical — a state of affairs that aligns with contemporary scholarly findings. Indeed, he notes in the continuation of the text that, although al-Ghazālī and al-Rāzī were distant from earlier theologians in terms of method and terminology, their works remained close to kalām in terms of content. Those who came after them, however, were distant from theology in terms of both method and content, and closer to philosophy. According to this account, an example of a theological work whose content is thus fused with philosophy is al-Bayḍāwī's (d. 1286) *Ṭawāli' al-Anwār* (Ibn Khaldūn, 1981, p. 1283).

Ibn Khaldūn, whose profound mastery of the content and history of logic is evident in the topics we have discussed so far, also brings to the fore his views on how education in logic ought to be conducted in his own era. As noted above, he critiques the transformation of logic into an independent science rather than being treated as a method and an instrument. Elsewhere, he highlights the risk that studying instrumental sciences (*al-'ulūm al-ālīyah*) as independent disciplines in their own right diverges students from the

[9] In evaluating these passages, Ömer Türker critiques Ibn Khaldūn's narrative, arguing that he attributes the transformation in the history of theology—with particular emphasis on al-Ghazālī—to the external impact of logic, thereby failing to give due weight to the fact that the rupture within theology essentially originated from within the discipline itself through al-Juwaynī's texts prior to al-Ghazālī. According to Türker, this shift stems not from formal reasons such as casting proofs into syllogistic form or discarding the conversability of proofs (*in'ikās al-adilla*), as Ibn Khaldūn asserts, but rather from material reasons, such as al-Juwaynī demonstrating the weakness of theological proofs to the point that they could no longer serve as the middle term of a syllogism (Türker, 2008, pp. 20-23). However, Ibn Khaldūn explicitly mentions Abū al-Ḥasan al-Ash'arī, al-Bāqillānī, and al-Juwaynī individually, thereby pointing to the respective role of each figure in the process leading to the rupture in the history of theology. Furthermore, by citing al-Juwaynī's *Kitāb al-Shāmil* and *Kitāb al-Irshād* and highlighting how he extensively treated the debates on this matter in the former (أوسع القول فيه), Ibn Khaldūn draws attention to al-Juwaynī's critical role in the transition toward the acceptance of logic. Therefore, we may argue that this rupture is presented by Ibn Khaldūn as well as having been brought about by internal dynamics and transformations within the discipline.

sciences that are sought for their own sake (*al-'ulūm maqṣūd bi'dh-dhāt*). In this context, he first categorises the sciences into 'those that are sought for their own sake' and 'those that serve as instruments for the sciences sought for their own sake.' Among the former are "Quranic exegesis, (tafsīr)", "ḥadīth", "jurisprudence/fiqh",
and "theology/kalām" within the religious sciences, and physics and metaphysics within the philosophical sciences. Serving as instruments for these are grammar and arithmetic for the religious sciences, and logic for the philosophical sciences (Arslan, 1989, s. 47, 2008; Ibn Khaldūn, 1981, p. 1248). However, as is clear from what has been discussed up to this point, logic also became an instrument for "kalām" and "fiqh" in the eyes of the later scholars.

Ibn Khaldūn emphasises that it is beneficial to treat the sciences sought for their own sake in great detail and breadth, and even to elucidate their proofs and methods of knowledge production. For in this manner, the subjects will be firmly established in the student's mind as an ingrained faculty (*malakah*), and the exposition of the sought meanings will be expanded. However, contrary to these sciences that are sought for their own sake, he expresses precisely the opposite view regarding instrumental sciences such as logic:

> As for sciences that serve as instruments for other disciplines, such as Arabic language and logic, they ought to be studied solely insofar as they are instruments for those other sciences. One must refrain from elaborating excessively upon them or multiplying their problematic issues (*al-masā'il*). For doing so diverts them from their true objective, given that their purpose is strictly to function as tools for other sciences. Whenever these sciences are employed outside of this intended purpose, they stray from their objective in general, to the extent that engaging with them becomes a futile endeavor (İbn Haldūn, 1981, pp. 1248-1249).

Having set out these points, Ibn Khaldūn intensifies his criticism by emphasising that paying attention to these sciences beyond their instrumental function is neither time-efficient nor conducive to student learning, as it distracts them from acquiring the sciences for their own sake:

> In this manner, the proliferation and protraction of the means [for acquiring other sciences] may also impede the acquisition of the sciences that are sought for their own sake (*maqṣūd bi-al-dhāt*). Yet, the attainment of these primary sciences is of paramount importance, and human life is too short to fully master them in this exhaustive manner. Therefore, engaging with these instrumental sciences (*al-'ulūm al-ālīyah*) in such a fashion constitutes a waste of life and an occupation with futile matters (*mā lā-ya'nī*). This is precisely what the later scholars (*muta'akhkhirūn*) have done in the arts of grammar, logic, and legal theory (*uṣūl al-fiqh*). For they extended discussions, multiplied details, and amplified argumentation concerning these instrumental sciences to such an extent that they detached them from their role as mere tools and diverted them from their true purpose (Ibn Khaldūn, 1981, p. 1249).

Thus, Ibn Khaldūn emphasises the necessity of distinguishing structurally between the higher sciences, which are inherently sought for their own sake, and the sciences that serve merely as instruments to acquire them. This distinction is made from the perspectives of time economy and prioritising what is genuinely beneficial for the student. In his view, whether employed in philosophy or the religious sciences, logic should not be given more attention than is necessary for it to fulfil its role as a mere instrument.

Conclusion

Ibn Khaldūn is a scholar who engaged with the science of logic both in terms of its place and significance within philosophy and, particularly with theology at the center, its relationship with the religious sciences. On the one hand, this brings to the fore the history of the philosophical sciences, and on the other, the history of transformations within the religious sciences in the Islamic intellectual tradition. Indeed, Ibn Khaldūn addressed the history of logic through both lenses. As we can infer from his presentation of the history of Arabic logic as a component of both the history of the *Organon* and the history of theology, he recognized not only the development of logic within philosophical literature but also the impact it exerted on the foundational texts of the religious sciences. In his narrative, the role of Fakhr al-Dīn al-Rāzī is paramount to the development of logic in the Islamic world from both perspectives. In this regard, al-Rāzī emerges both as the actor behind the transformations that formalised logic in the post-Avicennan philosophical tradition and as the figure who fused logic with theology as a consequence of the favorable orientation toward logic that commenced after al-Bāqillānī within the *kalām* tradition. Nevertheless, elements of his narrative remain subject to critique from both angles: First, the post-Avicennan shifts in logical literature—which Ibn Khaldūn traces back to al-Rāzī—can plausibly be initiated with Avicenna himself. Second, presenting al-Rāzī as both the figure who eliminated certain Peripatetic elements in logic—thereby establishing a new style of composition dominated by formal syllogism—and the one who accepted the foundational premises of logicians within theology introduces a problem of internal consistency.

Regarding the first of these issues, Ibn Khaldūn's probable reluctance to position Avicenna in an anti-Peripatetic stance—despite al-Shifā'—and the fact that the

changes in question became fundamentally established in the literature through al-Rāzī may serve as explanatory factors. For although Avicenna planted the seeds of certain transformations predominantly in al-Ishārāt, he himself is regarded as the definitive interpreter of Peripateticism through al-Shifā'; furthermore, the shifts cited by Ibn Khaldūn appear to have become firmly entrenched in philosophical and theological literature through al-Rāzī's *al-Mulakhkhaṣ* and al-*Muḥaṣṣal*.

The second issue, however, appears to be of greater significance, as it touches upon a broader problem pointing to interdisciplinary influences and transformations in the history of Islamic thought: Following the theologians' adoption of logic, in what direction did the transformations in these two disciplines unfold? Did logic become formalized, or did *kalām* become philosophical? Or is there a synthesis (*mezc*) wherein it is possible to affirm both? Regarding the interconnection between philosophical and theological problems (*masā'il*), we can identify proponents of several of these options among contemporary scholars. Nevertheless, *particularly* in light of the conflict between the foundational premises of *kalām* and those of logic constructed by Ibn Khaldūn, the issue necessitates tracing the methodological transformation in post-Rāzī theological literature in terms of whether these elements belong to *kalām*, logic, or both. Undertaking this task remains a question deferred to future studies—one that builds upon the clarification provided by this paper regarding Ibn Khaldūn's narrative on the history of Islamic logic.

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