

History of Logic from Aristotle to Gödel ([www.historyoflogic.com](http://www.historyoflogic.com))

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## Ancient Islamic Logic. Selected bibliography of studies in English: C - Gye

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### History of Islamic Logic

#### Islamic (Arabic and Persian) Logic

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### Bibliography

- Calverley, Edwin E. 1933. "al-Abharī's *Īsāghūjī fī-l mantiq*." In *The Macdonald Presentation Volume: A Tribute to Duncan Black Macdonald*, 75–85. Princeton: Princeton University Press.  
 "The title of al-Abhari's compendium is the same as that of Porphyry's "Introduction" to Aristotle's *Organon*, but, unlike Porphyry's work, al-Abhari's *Īsāghūjī* is not confined to a presentation of the Five Universals. It deals, although briefly, with all the nine divisions of logic.(4)  
 For western scholars the interest of the study of Arabian logic lies in the Muslim acceptance of the science from the Greeks and the adaptation of it to Muslim religious ideas.(5)  
 For western students of religion the translation furnishes a brief review of the accepted logical method in Muslim scholasticism. For Arabists the vocabulary provides in English a considerable number of technical terms of logic which have not yet been included in western lexicons of Arabic.(6) The importance of al-Abhari's *Īsāghūjī* is indicated not only by its inclusion in the "Collections of Texts,"

but also by the immense number of editions, commentaries and supercommentaries it has received.

Concerning al-Abhari himself Ibn Khallikān has the following notice: "In the year 625 [a.d. 1228] the Shaikh Athlir al-Dīn al-Mufaddal al-Abheri, the author of the *Talika fi 'l-Khilaf* [notes on controverted matters], the *Zlj* [astronomical tables], and other well known works, left Mosul and came to Arbela where we were then residing. He took up his lodgings in the Dar al-Hadlth [school for traditions], and I studied under his direction some controverted points of jurisprudence." He then relates several stories of al-Abhari's regard for his teacher Kamāl al-Dīn ibn Manā. (7)" (pp. 75-76)

(4) *Encyclopaedia of Islam*, art. "Īsāghūjī," Vol. II, p. 527 ; George Sarton, *Introduction to the History of Science* (Carnegie Institute of Washington, 1927), Vol. I, p. 335 ; *Liber Mafātih al-Qlūm*, edidit G. Van Vloten (Leiden, 1895), pp. 140 ff.

(5) *Encyclopaedia of Islam*, art. "Mantik," Vol. III, pp. 258 ff.

(6) Some of these terms are not found in the most extensive of the special vocabularies of philosophical Arabic, M. Horten, *Die Spekulative und Positive Theologie des Islams* (Leipzig, 1912).

(7) Ibn Khallikan s "*Biographical Dictionary*," translated from the Arabic by MacGuckin de Slane (Paris, 1843-1871), Vol. III, pp. 468.

2. Çapak, Ibrahim. 2010. "The Formation of Knowledge and Disputation (*Al-Jadal*) in Ghazālī's Logic." *Journal of Islamic Research* no. 3:129–142.  
Abstract: "Ghazālī attaches great importance to logic and attracts attention to the significance of logic saying "the knowledge of one who is not acquainted with logic is unreliable". The word 'logic' calls to minds the notions of conception (*tasawwur*) and assent (*tasdiq*). According to Ghazālī, the notions of conception and assent are the bases of all sciences. In this sense, the five arts emphasized by Aristotle and many other logicians as the application areas of syllogism are based on conception and assent. By virtue of their significance in Ghazālī's logic, this study is going to elaborate on the formation of knowledge and disputation (*jadal*) which is among the five arts."
3. Carter, M. G. 1997. "Analogical and syllogistic reasoning in grammar and law." In *Islam: Essay on Scripture, Thought and Society. A Festschrift in Honour of Anthony H. Johns*, edited by Riddell, Peter G. and Street, Tony, 104–112. Leiden: Brill.  
"It is well known that grammatical and legal reasoning are virtually identical, in that both involve the systematisation of irrational data predominantly by means of analogical reasoning. This identity has been cogently expounded by Ibn al-Anbari (d. 1181), whose *Luma<sup>c</sup> al-adilla* represents the culmination of a long process of methodological symbiosis between law and grammar.  
In looking again at those two disciplines, this paper, which is here dedicated with pleasure to my respected colleague Tony Johns, will concentrate on the two types of reasoning employed, analogical and syllogistic, with special attention to the terms *'illa* and *qiyās*, proceeding from the assumption that not only are analogy and syllogism historically and qualitatively different, but that they also have different applications. Briefly, analogy is a technique for infinitely extending a finite corpus of data to meet new circumstances, while syllogism authenticates the rationality of that technique without itself creating new law or linguistic usage (or indeed anything). The two systems are thus complementary and therefore mutually exclusive, that is, not only does syllogistic reasoning not create new law or language, but analogical reasoning cannot prove its own rationality. These ideas will easily be recognised as derived from the Aristotelian use of logic as the organising principle of all the sciences, which is precisely what we find in the first classifications of the sciences in Islam, notably those of al-Fārābī and Ibn Sīnā." (p. 104)
4. Cesalli, Laurent, Gazziero, Leone, Manekin, Charles H., Rahman, Shahid, Street, Tony, and Trizio, Michele, eds. 2023. *Fallacies in the Arabic, Byzantine, Hebrew and Latin Traditions*. Turnhout - Bari: Brepols - Edizioni di pagina.

Contents: Laurent Cesalli, Leone Gazziero, Charles H. Manekin, Shahid Rahman, Tony Street, Michele Trizio: Fallacies in the Arabic, Byzantine, Hebrew and Latin Traditions. Introduction 7; Sten Ebbesen: Are the Fallacies Topoi? 25; Costantino Marmo: The Fallacia Consequentis between Term Logic and Sentence Logic in its Medieval Reception 45; Leone Gazziero: "Qui imperitus est vestrum, primus calculum omittat". Aristotelis *Sophistici Elenchi* 1 in the Boethian Tradition 75; Irene Caiazzo: Theology, Fallacious Reasoning and Heresy on the Borders of the Twelfth and Thirteenth Centuries: Some Remarks on the Fallaciae in theologia and Amalricians 119; Melpomeni Vogiatzi: Byzantine Treatments of Fallacy: The Reception of Aristotle's Account 131; Shahid Rahman, Walter Edward Young: Outside the Logic of Necessity: Deontic Puzzles and 'Breaking' Compound Causal Properties in Islamic Legal Theory and Dialectic 153; Hassan Rezakhany: A Forgotten Mereological Paradox 187; Charles H. Manekin: Fallacies and Biblical Exegesis – The Case of Joseph ibn Kaspi 209; Aviram Ravitsky: Fallacies in Rabbinical Thought, in Medieval Jewish Philosophy, and in the Treatise on Talmudic Methodology by Abraham Elijah Cohen 231; Yehuda Halper: Are Zeno's Paradoxes of Motion Fallacies? Evidence from the Hebrew Aristotelian Logical Tradition 249-268.

5. Ceylan, Hadi Ensar. 2010. "Ghazali's Account of Signification." *Journal of Islamic Research* no. 3:98–114.  
 "The present study will only attempt to compare "the ways in which meaning is signified by utterances" in logic and methodology based on Ghazali's (d.505/1111) ideas. Our choice of Ghazali could concisely be expressed in a few points. First, Ghazali occupies a prominent place in methodology. His prominence stems from the fact that his work *al-Mustasfā* was a turning point in the systematization of methodology. Although we can talk about an established framework for the books on methodology compiled before Ghazali in general, the framework was not so much organized in itself. This was also a source of complaint for Ghazali, who expressed his criticisms on the point in his introduction of *al-Mustasfā*.<sup>(2)</sup> Ghazali argues that before him, there was a convention in methodology literature of dragging out matters of Islamic theology (*kalam*) by Islamic theologians and matters of jurisprudence (*fiqh*) by jurists. This fact prevented methodology from attaining an organized structure in itself. Criticizing his predecessors, Ghazali presents a highly systematized framework in *al-Mustasfā* when compared to the books written before him. The book consists of an introduction and four chapters. The introduction entirely deals with issues in logic. Since he considered methodology as a theoretical science, Ghazali gave an outline for logic in his introduction to the book on methodology on account to the fact that logic should be regarded as a foundation for every theoretical science." (pp. 98-99, a note omitted)  
<sup>(2)</sup> Abu Hamed Muhammad b. Muhammad al-Ghazali (d.505/1111), *al-Mustasfā min Ilmī'l-Usūl, Dāru'l-Erkam*, Beirut (p.d), I/24,27.
6. Chatti, Saloua. 2014. "Syncategoremata in Arabic Logic, al-Fārābī and Avicenna." *History and Philosophy of Logic* no. 35:167–197.  
 Abstract: "In this paper, I raise the following problem: What terms are considered as syncategoremata in the Arabic logical texts? How are they defined? How do they determine the forms of the propositions and the inferences? To answer these questions, I focus on the analyses provided by al-Fārābī and Avicenna. Both authors apply the grammatical distinction between the particle (the correspondent of the syncategorema), the noun and the verb to logic. They also state the semantic and the syntactic criterions, but their analyses of the particles are different. For al-Fārābī devotes two treatises to the analysis of particles: (1) *al-Alfāz al-musta'malah fī l-manṭiq*, where he provides a listing of particles that he classifies in the manner of the Greek grammarians and (2) *Kitāb al-Hurūf*, where he analyzes some particles used in metaphysics; while Avicenna, despite the considerable amount of his logical corpus, does not devote a special book to the analysis of particles. He does not provide any listing either but characterizes each logical particle (*ḥarf*) on its own,

while analyzing the propositions, their elements and the inferences. In this paper, I argue that this treatment of particles in the two frames shows a significant difference between the two authors with regard to the relation between logic and grammar, and with regard to the characterizations of the logical particles themselves. For Avicenna is much less interested than al-Fārābī by the grammatical analysis and focuses much more on the logical particles, which he scrutinizes meticulously. This enriches his definitions of the logical constants and leads him in the final analysis to different and more various inferences than those held by al-Fārābī."

7. ———. 2019. *Arabic Logic from al-Fārābī to Averroes: A Study of the Early Arabic Categorical, Modal, and Hypothetical Syllogistics*. Cham (Switzerland): Birkhäuser.  
 "This book is the continuation of the works that I have done in the field of Arabic logic since I became interested in it. I feel that the analysis and the precise study of Arabic logic is highly indispensable to all scholars interested in the history of logic in general, since it is still not well known, in the western world as well as in the Arabic one, despite the seminal contributions of Prof. Nicholas Rescher whose work helped discover and analyze the writings of many logicians of that tradition. He was followed by many contemporary researchers who were interested in its various aspects. I myself focused a lot on categorical and modal logics and presented some conferences on these topics on many occasions. But in this tutorial, I wished to give a more complete image of a tradition which lasted several centuries.  
 This is why I presented in the tutorial three different parts of these systems, which are the categorical logic, the modal logic, and the hypothetical logic. My analysis of these different theories focuses mainly on the original Arabic writings, in order to be as faithful as possible to the texts. I translated most of the quotations that I have given in this examination but I also used some good and well-known English translations such as those of Professors Tony Street, Nabil Shehaby, and Wilfrid Hodges, among others." (p. VII)
8. ———. 2022. "The Hypothetical Logic in the Arabic Tradition." In *Women's Contemporary Readings of Medieval (and Modern) Arabic Philosophy*, edited by Chatti, Saloua, 13–50. Cham (Switzerland): Springer.  
 Abstract: "In this paper, I will present the hypothetical logics of some authors pertaining to the Arabic tradition, namely al-Fārābī, Avicenna and some later logicians, in particular in North Africa, but not Averroes, as he gives that system very little importance. The main problems that I raise are the following: what is the hypothetical logic about? How is it viewed by the Arabic logicians, whether in early Medieval times (eighth twelfth centuries) or in later ones (fourteenth fifteenth centuries)? What are the main theories and results provided by these authors? The study of the hypothetical logic, which analyses the propositions containing 'if . . . then' and those containing 'either . . . or' shows that in al-Fārābī's frame, this system is given some importance and developed in various ways. But it is Avicenna who studies these propositions at the greatest length and gives them the most importance, since he introduces quantification in this field and presents several systems of hypothetical logic, having distinct features. In later times, the hypothetical logic is given much importance in particular in the Western (i.e. North-African) Arabic areas with the writings of Ibn 'Arafa and al-Sanūsī, among others, who seem influenced by Avicenna and especially his follower al-Khūnajī.  
 I will thus present the basic features and rules of these systems, and will show the main differences between these various systems as well as the evolution of this field in the Arabic tradition. I will also analyse the rules provided in the light of the modern classical formalism of propositional and predicate logics."
9. Chejne, Anwar G. 1984. "Ibn Hazm of Cordova on Logic." *Journal of the American Oriental Society* no. 104:57–72.  
 "Ibn Hazm [994-1064] received a broad education in both the religious and secular sciences, and may be considered one of the most erudite scholars of al-Andalus. He

was an enthusiastic defender of the sciences of the Ancients ('ulum al-awd'il), which comprised logic, mathematics, astronomy, medicine, and other sciences.

He considered these not only noble and useful, but attempted to reconcile them within the framework of the religious sciences.<sup>(4)</sup> He also emphasized the value of logic within the context of both the religious and secular sciences, and was its staunch defender throughout his career, even when he became devoted almost wholly to the study of the religious disciplines. His work on logic, *Facilitating the Understanding of the Rules of Logic and Introduction Thereto* (*al-Taqrīb li-hudūd al-mantiq wa-madkhaluh*), was written early in his career, between 1025 and 1029. (5)" (p. 57)

(4) This point is discussed at great length in his *Marātib al-ulūm*. See Chejne, *Ibn Hazm of Cordova and His Conception of the Science*, [Chicago: Kazi Publications 1982]

In his *Taqrīb*, 200, Ibn Hazm states: "We composed this book of ours and many others while we were in exile and far away from homeland, family and offspring." This could not have taken place during his first exile (1013-19). See his *Tawq*, 251. All indications are that he stayed in Cordova until the accession of al-Mustakfi (1023-25), who placed him in jail and caused his expulsion later on. Ibn Hazm appears to have returned to Cordova in about 1029 and remained there until about 1035 when he was exiled for the third time, never to return again.

10. Daiber, Hans. 2018. "*De praedicamento relationis in philosophia arabica et islamica*. The Category of Relation in Arabic-Islamic Philosophy (Extended Version)." *Enrahonar* no. Supplement Issue:431–490.  
Abstract: "The main sources for the discussion of the category "relation" were Aristotle's *Categories* and *Metaphysics*. Before their translation into Arabic in the 8th and 9th centuries, Christian theologians and in their footsteps Syriac scholars considered Aristotle's works to be a useful tool in Christological discussions. This article analyzes the category of relation and its development in Arabic-Islamic philosophy in authors such as Kindī and his student Aḥmad Ibn at-Ṭayyib as-Saraḥsī, Fārābī, Ibn Sīnā, Ghazālī, Ibn Ruṣd, the Sufi Ibn 'Arabī and others."
11. Daşdemir, Yusuf. 2019. "The Problem of Existential Import in Metathetic Propositions: Qutb al-Din al-Tahtani contra Fakhr al-Din al-Razi." *Nazariyat Journal for the History of Islamic Philosophy and Sciences* no. 5:81–118.  
Abstract: "This paper addresses discussions in post-Avicennan Arabic logic on various characterizations of metathetic propositions and their status vis-à-vis the existential import condition by focusing on the arguments made by Fakhr al-Dīn al-Rāzī (d. 606/1210) and the counter-arguments by Quṭb al-Dīn al-Rāzī al-Taḥṭānī (d. 766/1365), both of whom established their positions in a framework drawn by Avicenna (Ibn Sīnā, d. 428/1037), the most prominent figure in the tradition of classical Arabic logic. In his logic texts, Avicenna thoroughly discusses the problem of the existential import in metathetic propositions (ma'dūla), and seems to have presumed the existential import to be a truth-condition for affirmative propositions, and therefore, for affirmative metathetic propositions as well. For Avicenna, in other words, an affirmative metathetic proposition presumes its subject-terms's possibly existent referent(s). However, the theologian-philosopher Fakhr al-Dīn al-Rāzī, who lived about a century and half after Avicenna, criticized his views on metathetic propositions and their existential import among other things, thereby igniting a wave of debates in the tradition, in which Quṭb al-Dīn al-Taḥṭānī participated in the following century. By studying this contained problem, this paper seeks to address a wider scholarly concern regarding the vitality of post-classical Arabic logic, and to establish that this period witnessed the flourishing of philosophical debate among Arabic logicians."
12. ———. 2024. "Propositions with Negative Predicates in Arabic Logic." *History and Philosophy of Logic*:1–19.  
Abstract: "This paper explores a neglected category of propositions in Arabic logic, propositions with negative predicates (sālibat al-maḥ mūl), by addressing two

pivotal questions concerning this propositional form: first, whether it is possible to defend it as distinct from metathetic and simple negative propositions and second, whether affirmative instances of these propositions have existential import. The paper argues for the existence of two distinct and conflicting theories of existential import frequently implicit in the views of Arabic logicians: one centered on the copula and the other on the predicate."

13. Di Vincenzo, Silvia. 2018. "Early Exegetical Practice on Avicenna's *Śifā'*: Faḥr al-Dīn al-Rāzī's *Marginalia to Logic*." *Arabic Sciences and Philosophy* no. 28:31–66. Abstract: "Nine manuscripts preserving Avicenna's *Kitāb al-Śifā'* share a set of identical marginal glosses to the section of Logic. One of these manuscripts reports, at the end of each of the glosses, a certificate of transmission ascribing them to the theologian and philosopher Faḥr al-Dīn al-Rāzī (d. 606H/1210), which provides some material evidence of the existence of a flourishing exegetical activity on the *Kitāb al-Śifā'* during the twelfth-thirteenth century, in spite of the apparent lack of commentaries on the text in that period. The present paper provides an edition of the so far unknown *ḥāšiyāt* to Avicenna's *Kitāb al-Śifā'* by al-Rāzī, with an attempt at reconstructing their tradition and contextualizing them within al-Rāzī's exegetical and teaching activity."
14. ———. 2024. "Aristotle's *Categories* in the Arabic Tradition." In *Works of Philosophy and Their Reception*. Berlin: de Gruyter. Available on-line. Abstract: "Tracing the Arabic reception of Aristotle's *Categories* entails charting the history of a foundational philosophical work across three continents, from Spain to India, over a span of at least ten centuries (9th–19th century). This chapter offers an overview of the most significant phases of this reception. The first section examines the Arabic translations of the *Categories* and related Greek commentaries realized between the 9th and the 10th centuries, drawing on manuscript and bio-bibliographical sources. The second section delves into the development of an Arabic scholarly reflection on the *Categories* between the 9th and 11th centuries and the formation of a philosophical discourse surrounding a selection of key issues that would shape the subsequent reception of the treatise. Central among these key issues is the question of the scope of the *Categories* and its disciplinary classification. The third section presents Avicenna's (d. 1037) novel ontological interpretation of the *Categories* and the resulting repositioning of the treatise within metaphysics. The fourth section investigates the broader impact of Avicenna's reassessment of the place of the treatise in the post-Avicennian tradition (12th–14th century). Finally, the fifth section presents the 'traditionalist' interpretations of the *Categories* that emerged in response to the mainstream consensus on the ontological reading of the treatise established by the post-Avicennian tradition (12th–18th century)."
15. Druart, Thérèse-Anne. 2016. "Logic and Language." In *The Routledge Companion to Islamic Philosophy*, edited by Taylor, Richard C. and López-Farjeat, Luis Xavier, 69–81. New York: Routledge. "Introduction In Greek *logos*, word or discourse, gave rise to *logike techne* or craft of reasoning, i.e. logic. Further, the basic type of reasoning studied in logic is called the *sylogismos*, a word deriving from *logos*. These etymologies reveal a link between language and logic, particularly since symbolic logic was not yet invented. Classical Arabic too manifests a link between word or speech and logic as the word for logic *mantiq* derives from *nutq*, which means articulated speech. Yet, logic claims to be universal, whereas there is a great multiplicity of languages. Distinguishing logic from linguistic arts, as well as articulating their relationship, is a complex and difficult endeavor that philosophers in Islamic lands faced in various ways. They had to take into account not only the Greek philosophical tradition but also some theological positions. In the first section I look at logic as essentially an autonomous discipline focusing on syllogisms. In the second I explore how some philosophers

either emphasize their relationship or try to articulate better logic's autonomy. The last and final section deals with some of the philosophers' reflections on various aspects of language in general." (p. 69)

16. Ebadi, Ahmad, and Qaramaleki, Ahad Faramarz. 2018. "Singular Proposition (*Al-qaḍīyah al-Shakhṣīyah*) in Logic of the Islamic Period." *The Islamic Quarterly* no. 62:229–246.  
 Abstract: "Singular proposition (*al-qaḍīyah al-Shakhṣīyah*) is a type of categorical proposition (*al-qaḍīyah al-ḥamlīyah*). Islamic logicians have paid close attention to defining, naming, and analyzing of singular proposition. From the works of logicians of Islamic period, eight features of singular propositions can be derived: constituency relation, unquantifiability, indivisibility into confirmation of the subject and confirmation of the object, indivisibility into factual/extrinsic propositions, inefficiency in categorical syllogism, not being convertible, having no value in *al-'ulūm al-burhānīyah*, and truth of contradictory propositions in square of opposition."
17. El-Rouahyeb, Khaled. 2009. "Impossible Antecedents and Their Consequences: Some Thirteenth-Century Arabic Discussions." *History and Philosophy of Logic* no. 30:209–225.  
 Abstract: "The principle that a necessarily false proposition implies any proposition, and that a necessarily true proposition is implied by any proposition, was apparently first propounded in twelfth century Latin logic, and came to be widely, though not universally, accepted in the fourteenth century. These principles seem never to have been accepted, or even seriously entertained, by Arabic logicians. In the present study, I explore some thirteenth century Arabic discussions of conditionals with impossible antecedents. The Persian-born scholar Afdal al-Dīn al-Khūnājī (d.1248) suggested the novel idea that two contradictory propositions may follow from the same impossible antecedent, and closely related to this point, he suggested that if an antecedent implies a consequent, then it will do so no matter how it is strengthened. These ideas led him, and those who followed him, to reject what has come to be known as 'Aristotle's thesis' that no proposition is implied by its own negation. Even these suggestions were widely resisted. Particularly influential were the counter-arguments of Naṣīr al-Dīn al-Tūṣī (d.1274)."
18. ———. 2020. "Logic in the Arabic and Islamic World." In *Encyclopedia of Medieval Philosophy. Second edition*, edited by Lagerlund, Henrik, 1074–1083. Dordrecht: Springer.  
 Abstract: "The Arabic logical tradition emerged from the Graeco-Arabic translation movement from the eighth to the tenth centuries. In its initial stages, it was closely linked to the activity of translating and commenting upon Aristotle's *Organon*. By the early tenth century, a circle of Aristotelian scholars had emerged in Baghdad who saw themselves as a continuation of the Alexandrian tradition. Its most prominent representative was undoubtedly Al-Fārābī (d. 950), who wrote esteemed commentaries on Aristotle's logical works, as well as a number of treatises introducing logic (*manṭiq*) to an environment that often viewed the Greek sciences with suspicion. The influence of the Baghdad circle eventually reached Islamic Spain, where Aristotelian philosophy and logic flourished in the eleventh and twelfth centuries, culminating in the monumental commentaries on Aristotle by Averroes (d. 1198). In other parts of the Islamic world, however, the influence emanating from Avicenna (d. 1037) eventually superseded that of Aristotle. Avicenna was less concerned with getting the interpretation of Aristotle right and more willing to make radical departures from the Aristotelian tradition. By the thirteenth century, his works had replaced those of Aristotle as the point of reference for most logicians writing in Arabic. The prominent theologian Fakhr al-Dīn al-Rāzī (d. 1210) approached the Avicennian tradition with the same irreverence with which Avicenna had himself approached the Aristotelian tradition. He also decisively reoriented the scope of logic toward a focused study of terms, propositions, and syllogisms, rather than the entirety of topics covered in the

- Organon. A number of thirteenth-century logicians working in the wake of Avicenna and Fakhr al-Dīn al-Rāzī produced sophisticated and original summās of formal logic. They also produced a number of condensed handbooks that formed the basis of logical studies at colleges throughout the Islamic world until modern times."
19. ———. 2022. "Mixed Conditional-Categorical Syllogisms from Avicenna to Urmawī." *History and Philosophy of Logic* no. 43:232–250.  
Abstract: "A number of medieval Arabic logicians discussed inferences that combine the principles of propositional and term logic, for example:  
Whenever H is Z then Every J is D  
No D is A  
Whenever H is Z then Some J is not A  
The present paper will be devoted to discussions of the validity of mixed conditional-categorical syllogisms of this form, and purported counterexamples, from Avicenna (d. 1037) to Urmawī (d. 1283). One major problem that was discussed, related to modern discussions of the context-sensitivity of counterfactual conditionals, is that if the antecedent of the conditional premise is incompatible with the categorical premise, then there is no guarantee that the latter will combine syllogistically with the consequent of the conditional premise. Plausible formalizations of the argument reinforce the misgivings expressed by some thirteenth-century Arabic logicians."
  20. ———. 2023. "Dawānī (d. 1502) and Dashtakī (d. 1498) on Primary (awwalī) and Familiar (muta'āraf) Predication." *Oriens* no. 51:367–392.  
Abstract: "The present article explores the motivations that led Jalāl al-Dīn al-Dawānī (d. 1502) to draw the distinction between what he called "primary predication" (*ḥaml awwalī*) and "familiar predication" (*ḥaml muta'āraf* or *ḥaml shā'i*). These motivations include allowing for the predication of particulars, such as "This is Zayd" and accounting for apparently true self-negations, such as "The [concept] particular is not a particular." The article also explores some criticisms of this distinction by Dawānī's contemporary and rival Ṣadr al-Dīn al-Dashtakī (d. 1498). Despite these criticisms, Dawānī's distinction was adopted, adapted, and emphasized by the Safavid scholar Mīr Dāmād (d. 1631). Mīr Dāmād's influence, in turn, accounts for the prominence given to the distinction in later centuries among Iranian and Indo-Muslim logicians."
  21. ———. 2025. "A Problem with the Wholly Hypothetical Syllogism: Some 13th-Century Arabic Discussions." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 300–325. Leiden: Brill.  
"Until the time of Avicenna, it was standard in the Arabic logical tradition to divide syllogisms into categorical (*ḥamlī*) and hypothetical (*sharṭī*). The latter included the following three argument schemes:  
(i) modus ponens:  
If p then q.  
p.  
∴ q.  
(ii) modus tollens:  
If p then q.  
Not-q.  
∴ Not-p.  
(iii) disjunctive syllogism:  
p or q.  
Not-p.  
∴ q.  
Avicenna and the post-Avicennan logical tradition accepted these inference schemes, but also recognized what they termed the "connective-hypothetical syllogisms," including what in the European logical tradition is called "wholly" or "purely" hypothetical syllogisms:(1)

If p then q.  
 If q then r.  
 $\therefore$  If p then r.

The present paper will present some of the worries about this syllogism, expressed already by Avicenna and discussed intensely in the thirteenth century. (pp. 00-301)  
 (1) Tony Street, "Arabic Logic," in D.M. Gabbay & J. Woods (eds.), *Handbook of the History of Logic, Vol. 1: Greek, Indian and Arabic Logic* (Amsterdam: Elsevier, 2004): 523–596, at 543–547.

Street's article is a landmark in the modern study of the history of Arabic logic and remains the indispensable starting point for later research

22. ———. 2025. "Qūshjī (d. 1474) and Dawānī (d. 1502) on Truth and Correspondence." *Journal of the History of Philosophy* no. 63:191–208.  
 Abstract: "The present article presents the views of two fifteenth-century Islamic scholars, 'Alī al-Qūshjī (d. 1474) and Jalāl al-Dīn al-Dawānī (d. 1502), on the following issue: When we make claims about extramental subjects and predicates, it seems plausible to suggest that such claims are true by virtue of corresponding to extramental reality. But what do we make of claims whose subjects and predicates are not extramental existents, such as philosophical claims like 'An actual infinity is impossible' or 'Existence is a second intention'? It seems problematic to suggest that such claims are made true by mental reality, for one can have false philosophical views. Such considerations led some earlier scholars to postulate that the truth of such propositions consists in correspondence with what is in the Active Intellect.  
 Qūshjī raised objections to such proposals, and his glossator Dawānī developed another account that distinguished between de facto beliefs and the beliefs that are appropriate to our concepts."
23. El-Rouayheb, Khaled. 2004. "Sunni Muslim Scholars on the Status of Logic, 1500-1800." *Islamic Law and Society* no. 11:213–232.  
 Abstract: "In the present article, I discuss Goldziher's contention (echoed in more recent literature) that from the thirteenth and fourteenth centuries, Sunni Muslim scholars ('*ulama*') became increasingly hostile to rational sciences such as logic. On the basis of discussions and *fatāwā* by Sunni scholars in the sixteenth, seventeenth and eighteenth centuries, I show that this idea is radically mistaken. Mainstream scholars in the Maghrib, Egypt and Turkey considered logic to be not only permissible but actually commendable or even a religious duty incumbent on the Muslim community as a whole (i.e. a *farḍ kifāyah*). Though there were dissenting voices in the period, such as the Qāḍizādelīs, this seems to have been the mainstream opinion of Sunni scholars until the rise of the Salafiyyah movement in the nineteenth and twentieth centuries."  
 References  
 Ignáz Goldziher, "Stellung der alten islamischen Orthodoxie zu den antiken Wissenschaften," *Abhandlung der Koniglichen Akademie der Wissenschaften*, 8 (1915): 3-46. In what follows, all references and quotations will be to and from the English translation "The Attitude of Orthodox Islam Toward the Ancient Sciences," in M.L. Swartz (transl. and ed.), *Studies on Islam* (New York and Oxford: Oxford University Press, 1981), 185-215.
24. ———. 2005. "Was There a Revival of Logical Studies in Eighteenth-Century Egypt?" *Die Welt des Islams* no. 45:1–19.  
 "It is a common assumption that intellectual life in the Arabic-Islamic world entered a period of stagnation or decline after the 13th or 14th century. The intellectual inertia is supposed to have lasted until the 19th century, when a more dynamic and vital Europe thrust itself upon the region. This overall interpretation of the course of Arabic-Islamic intellectual history seems never to have been the conclusion of careful and dispassionate historical investigation. We simply know too little about the intellectual life of the Arabic-Islamic world between 1400 and 1800 to be able to justify such an unflattering comparison with the earlier, so-called "classical" age of

Arabic-Islamic civilisation. In recent decades, the idea that the period between 1500 and 1800 constituted a period of overall "decline" has been challenged." (p. 1)  
(...)

"In the present article, I explore some intriguing evidence suggesting that there was a revival of interest in logic in eighteenth-century Egypt. In particular, one prominent scholar writing in Egypt towards the end of the eighteenth century believed that there had indeed been a resurgence of interest in the discipline starting around two generations earlier and continuing to his own day. I assess this testimony by drawing on other historical sources from the period, primarily the history of 'Abd al-Rahman al-Jabarti (d.1825-6) and the biographical compilation of scholars who died in the Muslim eleventh century (1592-1688 C.E.) by the Damascene scholar Muhammad Amin al-Muhibbi (d.1699). I then discuss how my findings relate to the claims of Gran and Schulze." (p. 2)

#### References

Peter Gran, *Islamic Roots of Capitalism: Egypt 1760-1840* (Austin & London, 1978).

Reinhardt Schulze, "Das islamische achtzehnte Jahrhundert: Versuch einer historiographischen Kritik", *Die Welt des Islams* 30 (1990): 140-159.

Reinhardt Schulze, "Was ist die islamische Aufklärung?", *Die Welt des Islams* 36 (1996): 276-325.

25. ———. 2006. "Opening the Gate of Verification: The Forgotten Arab-Islamic Florescence of the 17th Century." *International Journal of Middle East Studies* no. 38:263–281.

"In the present article, I would like to challenge this idea of intellectual apathy and stagnation by drawing attention to some hitherto neglected intellectual developments in the Arabic-speaking parts of the Ottoman Empire in the 17th century. One of these developments was the introduction of a range of new handbooks in the fields of grammar, semantics-rhetoric, logic, and theology, mostly of either Persian or Maghribi origin.

Contemporary witnesses believed that his development was significant, because Persian and Maghribi scholars were imbued, or so it was believed, with an ethos of "verification."

Another major development was the spread of originally non-Arabic mystical orders such as the Shattariyya, Naqshbandiyya, and Khalwatiyya in the region. This development appears to have had the effect of strengthening support for monist, pro-Ibn 'Arabi doctrines, which had hitherto been regarded with suspicion by most Arab-Islamic scholars (*ulama*). The two trends were distinct, but at times coalesced, as in the case of two of the intellectual giants of the 17th century, Ibrahim al-Kurani (1616-90) and 'Abd al-Ghani al-Nabulusi (1640-1731)." (p. 264)

26. ———. 2009. "Impossible Antecedents and Their Consequences: Some Thirteenth-Century Arabic Discussions." *History and Philosophy of Logic*:209–225.

Abstract: "The principle that a necessarily false proposition implies any proposition, and that a necessarily true proposition is implied by any proposition, was apparently first propounded in twelfth century Latin logic, and came to be widely, though not universally, accepted in the fourteenth century. These principles seem never to have been accepted, or even seriously entertained, by Arabic logicians. In the present paper I explore some thirteenth century Arabic discussions of conditionals with impossible antecedents. The Persian-born scholar Afdal al-Dīn al-Khūnājī (d.1248) suggested the novel idea that two contradictory propositions may follow from the same impossible antecedent, and closely related to this point, he suggested that if an antecedent implied a consequent, then it would do so no matter how it was strengthened. These ideas led him, and those who followed him, to reject what has come to be known as 'Aristotle's thesis' that nothing is implied by its own negation. Even these suggestions were widely resisted. Particularly influential were the counter-arguments of Naṣīr al-Dīn al-Tūṣī (d.1274)."

27. ———. 2010. *Relational Syllogisms and the History of Arabic Logic, 900-1900*. Leiden: Brill.
- "In the first chapter of the study that follows, I present discussions of the anomaly of relational inferences by logicians writing in Arabic during the 'classical' period from around 900 to 1200: Fārābī (d. 950) and his second-generation student Ibn Zur'a (d. 1008); Avicenna (d. 1037) and his followers, such as Bahmanyār (d. 1065) and Sāwī (fl. 1145); the more orthodox Aristotelian scholars Abū l-Barakāt al-Baghdādī (d. 1165) and Averroes (d. 1198); and the anti-Peripatetic Platonist philosopher Yahyā al-Suhrawardī (d. 1191).
- In the second chapter, I survey the discussions of relational inferences that took place between the year 1200 and 1350. The topic received a decisive impetus from its treatment by Fakhr al-Dīn al-Rāzī (d. 1210), who argued that previous attempts at explaining away inferences such as 'the argument from equals' were unsatisfactory and that the stipulation that a categorical syllogism must have three terms, of which one is shared, should be abandoned.
- (...)
- In chapter three, I present some discussions of the topic between 1350 and 1600. This period has often been dismissed as an age of sterile 'commentaries and glosses.'
- (...)
- In chapter four, I trace the discussions of the topic in Iranian, Indo-Muslim, North African, and Christian Arabic logical works from 1600 to 1900. By this time, distinct traditions of Arabic logic had crystallized, with different standard handbooks. Hence, it is helpful to survey each major regional tradition separately.
- In chapter five, I look at the discussions of the topic in Ottoman works on logic (usually written in Arabic) from 1600 to 1800. By the latter date, relational inferences had been recognized in several Ottoman works as a special type of 'unfamiliar syllogism,' and a number of scholars began to explore the logic of such inferences.
- In chapter six, I give a systematic account of the logic of relational syllogisms as presented in a handbook on logic by the Ottoman scholar Ismā'īl Gelenbevī (d. 1791) and its commentary by Muṣṭafā Sīrōzī (fl. 1808–1839).
- (...)
- In chapter seven, I survey developments of the theme in nineteenth century Ottoman logic. Ottoman logicians of that century expanded the framework of relational syllogisms and showed a keen interest in using this expanded framework for rendering arguments that they encountered in scholarly works into explicit syllogistic form." (pp. 3-4)
28. ———. 2012. "Post-Avicennan Logicians on the Subject Matter of Logic: Some Thirteenth- and Fourteenth-Century Discussions." *Arabic Sciences and Philosophy* no. 22:69–90.
- Abstract: "In the thirteenth century, the influential logician Afdal al-Dīn al-Khujānī (d. 1248) departed from the Avicennan view that the subject matter of logic is "second intentions".
- For al-Khujānī, the subject matter of logic is "the objects of conception and assent". His departure elicited intense and sometimes abstruse discussions in the course of subsequent centuries. Prominent supporters of Khujānī's view on the subject matter of logic included Kātibī (d. 1277), Ibn Wāṣil (d. 1298) and Taftāzānī (d. 1390). Defenders of Avicenna's view included Tūsī (d. 1274), Samarqandī (d. 1303) and Quṭb al-Dīn al-Rāzī (d. 1365). This article presents the outline of the development of this discussion down to the end of the fourteenth century and attempts to reconstruct the major arguments of both sides."
29. ———. 2016. "Does a Proposition Have Three Parts or Four? A Debate in Later Arabic Logic." *Oriens* no. 44:301–331.
- Abstract: "The present article traces the controversy on propositions and their parts, intensively discussed by logicians writing in Arabic in the fourteenth, fifteenth and sixteenth centuries. From the beginning of the Arabic logical tradition to the end of

the thirteenth century, the dominant view among Arabic logicians was that a categorical proposition consists of three parts: subject, predicate and nexus between them indicated (in most languages) by the copula. A number of influential logicians from the fourteenth century suggested that the parts are strictly four: the subject, the predicate, the nexus between them, and the judgment. This thesis was criticized in the late fifteenth century, most influentially by the Persian scholar Dawānī (d.1502). His criticism and the ensuing discussion came to be intertwined with another controversial issue: can some objects of conception (*taṣawwur*) also be objects of assent (*taṣdīq*)?"

30. ———. 2016. "Arabic Logic after Avicenna." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Read, Stephen, 67–93. Cambridge: Cambridge University Press.  
"The critical interventions of Rāzī and Khūnājī were in turn modified and carried forward by later generations of like-minded logicians such as Athīr al- Dīn al- Abharī (d. 1265), Najm al- Dīn al- Kātibī (d. 1277), and Sirāj al- Dīn al- Urmawī (d. 1283). These "revisionist Avicennan" logicians (I adopt the phrase from Tony Street) authored lengthy summas of logic as well as shorter handbooks that continued to be studied in Islamic madrasas until the twentieth century: Abharī's elementary *Īsāghūjī*; Kātibī's *al-Risālah al-Shamsiyyah*; and Urmawī's *Maṭālī' al- anwār*. These handbooks in turn became the point of departure for later logicians. Especially in Persia and India, Avicenna's logical writings continued to be prized, copied, and quoted (Ahmed 2012), but the state of the field had changed too much in the course of the twelfth and thirteenth centuries for Avicenna's writings to constitute the state of the art for logicians writing after around 1300. The following section will take a closer look at the logic expounded in the enormously influential thirteenth- century post- Avicennan handbooks (especially Kātibī 1948). The section after that will attempt to outline the development of Arabic logic in the fourteenth and fifteenth centuries." (pp. 68-69)  
References  
Ahmed, Asad Q. 2012. 'Logic in the Khayrābādī School in India: A Preliminary Exploration'. In M. Cook, N. Haider, I. Rabb and A. Sayeed (eds.), *Law and Tradition in Classical Islamic Thought: Studies in Honor of Professor Hossein Modarressi*. New York: Palgrave Macmillan, 227-244.  
Kātibī, Najm al-Dīn. 1948. *Al- Risālah al-Shamsiyyah*. Cairo: Muṣṭafā al-Bābī al- Ḥalabī.
31. ———. 2016. "Theology and Logic." In *The Oxford Handbook of Islamic Theology*, edited by Schmidtke, Sabine, 408–431. New York: Oxford University Press.  
Abstract: "In the ninth and tenth centuries, Arabic 'logicians' (*manṭiqiyyūn*) and Islamic 'theologians' (*mutakallimūn*) constituted distinct and rival groups. The former advocated the use of Aristotelian and Stoic formal modes of inference, whereas the later had a very different and broadly analogical model of argumentation and disputation. In the course of the eleventh and twelfth centuries, a number of prominent Islamic theologians such as al-Ghazali (d. 1111) and Fakhr al-Din al-Razi (d. 1210) began to adopt Greek-derived formal logic and to concede that the older analogical forms of argumentation were inappropriate to the discipline of theology. Despite an opposition to this process by such figures as Ibn Taymiyyah (d. 1328), this blending of logic and Islamic theology became predominant by the fourteenth and fifteenth centuries. Henceforth, opposition to logic tended to be confined to Islamic religious circles that were also fiercely opposed to the discipline of theology (*kalam*)."
32. ———. 2018. "*Takmil al-Mantiq*: A Sixteenth-Century Arabic Manual on Logic." In *Illuminationist Texts and Textual Studies: Essays in Memory of Hossein Ziai*, edited by Gheissari, Ali, Walbridge, John and Alwishah, Ahmed, 199–256. Leiden: Brill.  
"The history of Arabic logic after Avicenna (d.1037) is only just beginning to be explored. Until quite recently, it was widely believed that there would be little point

in doing so." (p. 299)

(...)

"More recent scholarship has concluded that this overall interpretation is spectacularly wrong. Thanks especially to the path-breaking research of Nicholas Rescher and Tony Street, we now know that logic continued to be cultivated at an advanced level for centuries after Avicenna." (p. 199)

(...)

"Rescher and Street have both drawn attention to another post-Avicennan logical work: *Sharḥ al-Takmīl fī 'l-manṭiq*, a manuscript of which is extant at the British Library.<sup>(3)</sup> This work includes, among other things, a detailed analysis of modality propositions and the logical relations, immediate inferences, and syllogisms involving them." (p. 200)

(...)

"As will be seen below, Rescher was quite mistaken about the provenance and date of the work, which does not really fit into his narrative of post-medieval decline. The author of *Takmīl al-manṭiq* was an Iranian-born scholar who was active in the Ottoman Empire in the early- to mid-sixteenth century, and he was not named Shirwānī." (p. 200)

"To sum up the case: The author of *Takmīl al-manṭiq* should be identified with Ḥasan b. Ḥusayn b. Muḥammad al-Amlashī al-‘Ajāmī who was active in the Ottoman Empire in the 1530s and 1540s. His *Takmīl al-manṭiq* was dedicated to a certain Aḥmad Ḥelebī b. Abū'l-Su‘ūd, who is almost certainly the son of the famous Ottoman Grand Mufti Abū'l-Su‘ūd. This would place the composition of the work in Istanbul in the middle of the sixteenth century. There are good reasons to think that the author is identical to Ḥasan b. Ḥusayn al-Tālishī al-‘Ajāmī (d. 1556 or 57) on whom there is an entry in Ṭāṣköprüzāde’s classic biographical dictionary of Ottoman scholars *al-Shaqā’iq al-nu‘māniyya*.

Though the identification is not as water-tight as one could have wished, it is very unlikely that there were two different scholars from the same distinct Talish-speaking region in Iran, both with the name “Ḥasan b. Ḥusayn”, both active in the Ottoman Empire in the 1530s and 40s, both spending time in Cairo, and both residing in Istanbul in the early years of the 1550s." (p. 210)

(3) British Library, London: MS Or. 12405, fols. 71b–104a.

33. ———. 2019. *The Development of Arabic Logic (1200–1800)*. Basel: Schwabe Verlag.

"In the Islamic world, there has in recent years been a burgeoning interest in editing premodern works on philosophy and logic." (p. 19)

(...)

"This more recent scholarship has made it possible to offer the present overview of the history of Arabic logic from 1200 to 1800, an overview that is intended to be at once a corrective and a homage to Rescher’s *The Development of Arabic Logic*. Like Rescher’s work, it is in part bio-bibliographic. Each section of what follows has an introductory essay on general developments within a certain period and region, followed by discussions of the lives and works of some major figures. Deciding who was and who was not a “major” figure is of course not always straightforward. This is especially the case for the later centuries, both because more material survives from those centuries and because it is easier, with the benefit of hindsight, to determine who the influential logicians of earlier times were – it is more difficult to do so when dealing with scholars who were writing just before the dramatic disruptions of the nineteenth and twentieth centuries that in many regions brought the Arabic tradition of logic to an end. In general, an attempt has been made to include logicians who appear to have been original, or whose works were widely copied or discussed, or who were noticeably prolific, or illustrate certain significant historical trends. At the present stage of research, our sense of which logicians meet these criteria is of course provisional, and there may be readers who are disappointed that some figure or other has been left out. But in an overview such as this, some difficult choices have to be made. It is simply impossible to include every

- single scholar who wrote on logic in Arabic in the six hundred years spanned by the present volume." (pp. 19-20)
34. ———. 2019. "Books on Logic (*manṭiq*) and Dialectics (*jadāl*)." In *Treasures of Knowledge: An Inventory of the Ottoman Palace Library (1502/3–1503/4). Volume I*, edited by Necipoğlu, Gülru, Kafadar, Cemal and Fleischer, Cornell H., 891–906. Leiden: Brill.
- "The ordering of subjects in the palace library inventory prepared by 'Atufi seems to reflect a general sense of rank. Logic and dialectics appear toward the end of the inventory, suggesting that they were ranked relatively low. Nevertheless, these disciplines were regularly studied in Ottoman colleges (*madrasas*). The cataloguer 'Atufi himself contributed to them, writing a commentary on *Īsāghūjī* (Introduction), the standard introductory handbook on logic by Athir al-Din al-Abhari (d. 1265). (1) Ottoman palace slaves (the *kapıkulu*) were also taught logic, and it is explicitly for the education of this group that a Turkish work on logic dedicated to Sultan Bayezid II and entitled *Zübde't ul-beyān (The Cream of Exposition)* was written. (More on this work below.)
- The inventory features 116 entries in the section devoted to books on logic (*manṭiq*) and dialectics (*jadāl*)." (p. 891)
- (1) For an extant copy, see Fehmi Edhem Karatay, *Topkapı Sarayı Müzesi Kütüphanesi Arapça Yazmalar Kataloğu*, 4 vols. (Istanbul: Topkapı Sarayı Müzesi, 1966), 3:669–70 (nr. 6803).
35. ———. 2020. "Logic in the Arabic and Islamic World." In *Encyclopedia of Medieval Philosophy. Second edition*, edited by Lagerlund, Henrik, 1074–1083. Dordrecht: Springer.
- Abstract: "The Arabic logical tradition emerged from the Graeco-Arabic translation movement from the eighth to the tenth centuries. In its initial stages, it was closely linked to the activity of translating and commenting upon Aristotle's *Organon*. By the early tenth century, a circle of Aristotelian scholars had emerged in Baghdad who saw themselves as a continuation of the Alexandrian tradition. Its most prominent representative was undoubtedly Al-Fārābī (d. 950), who wrote esteemed commentaries on Aristotle's logical works, as well as a number of treatises introducing logic (*manṭiq*) to an environment that often viewed the Greek sciences with suspicion. The influence of the Baghdad circle eventually reached Islamic Spain, where Aristotelian philosophy and logic flourished in the eleventh and twelfth centuries, culminating in the monumental commentaries on Aristotle by Averroes (d. 1198). In other parts of the Islamic world, however, the influence emanating from Avicenna (d. 1037) eventually superseded that of Aristotle. Avicenna was less concerned with getting the interpretation of Aristotle right and more willing to make radical departures from the Aristotelian tradition. By the thirteenth century, his works had replaced those of Aristotle as the point of reference for most logicians writing in Arabic. The prominent theologian Fakhr al-Dīn al-Rāzī (d. 1210) approached the Avicennian tradition with the same irreverence with which Avicenna had himself approached the Aristotelian tradition. He also decisively reoriented the scope of logic toward a focused study of terms, propositions, and syllogisms, rather than the entirety of topics covered in the *Organon*. A number of thirteenth-century logicians working in the wake of Avicenna and Fakhr al-Dīn al-Rāzī produced sophisticated and original summaries of formal logic. They also produced a number of condensed handbooks that formed the basis of logical studies at colleges throughout the Islamic world until modern times."
36. ———. 2022. "Mixed Conditional-Categorical Syllogisms from Avicenna to Urmawī." *History and Philosophy of Logic* no. 43:232–250.
- Abstract: "A number of medieval Arabic logicians discussed inferences that combine the principles of propositional and term logic, for example:
- Whenever H is Z then Every J is D  
No D is A  
Whenever H is Z then Some J is not A

The present paper will be devoted to discussions of the validity of mixed conditional-categorical syllogisms of this form, and purported counterexamples, from Avicenna (d. 1037) to Urmawī (d. 1283). One major problem that was discussed, related to modern discussions of the context-sensitivity of counterfactual conditionals, is that if the antecedent of the conditional premise is incompatible with the categorical premise, then there is no guarantee that the latter will combine syllogistically with the consequent of the conditional premise. Plausible formalizations of the argument reinforce the misgivings expressed by some thirteenth-century Arabic logicians."

37. Endress, Gerhard. 1977. "The Debate between Grammar and Greek logic." *Journal for the History of Arabic Sciences* no. 2:1406–118.
38. Eshera, Osama, Savadi, Fateme, and Wisnovsky, Robert. 2025. "Prolegomena to a Critical Edition of Sāwī's Baṣā'ir." In *Logic, Soul, and World: Essays in Arabic Philosophy in Honor of Tony Street*, edited by Ahmed, Asad Q., Zarepour, Mohammad Saleh and Strobino, Riccardo, 450–498. Leiden: Brill.  
 "In this article, we offer some preliminary remarks about the reception-history of 'Umar ibn Sahlān as-Sāwī's (d. ca. 566/1170) logic text, *al-Baṣā'ir an-Naṣīriyya* ([*Logical*] *Insights for Naṣīr [al-Dīn]*), and we append a sample of what a critical edition of that text could look like. In so doing, we hope both to contribute to future research on Sāwī's place in the history of post-Avicennian logic, and to pay tribute to Tony Street's fundamental contributions to the study of that history." (p. 450)
39. Fallahi, Asadollah. 2021. "An Inquiry on Fakhr al-Dīn Rāzī's Authorship of *Al-Mantiq al-kabīr* (MS Aḥmad iii, no. 3401)." *History and Philosophy of Logic* no. 46:224–246.  
 Abstract: "It is quite common among historians of Arabic logic to attribute MS Aḥmad iii, no. 3401, entitled *Al-Mantiq al-kabīr* (Major [book on] logic), to Fakhr al-Dīn Rāzī. This view is expressed explicitly and forcefully by Franziska Knobel (2015) and Turgut Akyüz and Elmin Aliyev (2020). In this paper, we try to refute this attribution through textual analysis, thereby exposing new evidence to the contrary. We show that the text has several references to Fakhr al-Dīn Rāzī himself as well as to some later logicians such as Rāzī's pupil Zayn al-Dīn Kashshī and the latter's successor Afd. al al-Dīn Khūnajī. We also show that contrary to some contemporary historians, all references to '*kitābunā al-kabīr*' ('our major book') in Rāzī's *Sharḥ Al-ishārāt* do not refer to *Al-Mantiq al-kabīr*; but to *Al-mabāhith al-mashriqiyya*."  
 References  
 Knobel, F. 2015. 'Fahradīn ar-Rāzī, *Al-Mantiq al-kabīr* (MS Aḥmad iii, no. 3401, Jahr 1268 n. Chr.): Über den Nutzen der Dialektik', *Oriens*, 43, 414–32.  
 Turgut Akyüz, Elmin Aliyev 2020. Was *Al-Mantiq Al-Kabīr* Compiled By Fakhr al-Dīn Al-Rāzī? A Study on the Problem of Authorship, *Ortaçağ Araştırmaları Dergisi – Journal of Medieval Studies*, 3, 63–72.
40. ———. 2023. "Early Arabic logicians on the contraposition of the particular affirmative." *British Journal for the History of Philosophy* no. 31:382–404.  
 Abstract: "The logical rule of contraposition as applied to a particular affirmative proposition (I-contraposition), despite its rejection in the medieval Latin logic, had a different history in the medieval Arabic logic, varying from common acknowledgement to total dismissal (it was accepted by Avicenna and by all of his followers in the eleventh and twelfth centuries and rejected by all of Arabic logicians in the late thirteenth century onwards). This paper is a narrative of the fate of I-contraposition in the early Arabic logic. I will study Avicenna's, al-Suhrawardī's, al-Rāzī's, al-Kashshī's, and al-Khūnajī's views on this rule. Although Avicenna explicitly acknowledged I-contraposition in a brief note, and in an apparently Meinongian language, the other four figures found I-contraposition problematic and listed some counterexamples to it. Nonetheless, they all attempted to justify Avicenna's acceptance of the rule by restricting its application conditions. These efforts led to interesting syntactic and

semantic analyses but gathered little attention from later medieval logicians. Finally, in the middle Arabic logic, the revised versions of I-contraposition were also declared invalid."

41. ———. 2024. "Burhān al-dīn Nasafī as the Author of *Al-Manṭiq al-kabīr* (MS Aḥmad iii, no. 3401)." *History and Philosophy of Logic* no. 45:246–261.  
Abstract: "Recently, in 'An inquiry on Fakhr al-Dīn Rāzī's authorship of *Al-manṭiq al-kabīr* (MS Aḥmad iii, no. 3401)', we refuted the quite common view among historians of Arabic logic as to attribute *Al-manṭiq al-kabīr* (Major [book on] logic) to Fakhr al-Dīn Rāzī; however, in that paper, we could not identify the real author of the book. In this paper, we try to show that *Al-manṭiq al-kabīr* was written by Burhān al-dīn Nasafī (1203–1288), who authored another book, *Sharḥ Asās al-kiyāsa* whose logical part is very similar to *Al-manṭiq al-kabīr* in the following significant features: the titles of chapters and sections, the style of writing, some technical as well as some non-technical terms, many sentences word by word. None of these features we find in any other Arabic logical work. So, *Al-manṭiq al-kabīr* and *Sharḥ Asās al-kiyāsa* are so close to each other that we might most possibly identify the authors of the books as the same scholar, i.e. Burhān al-dīn Nasafī. Fortunately, this has been verified recently by two manuscripts of a medieval Arabic logical book."
42. Fanani, Ahwan, Syifa, Mohammad , and Widigdo, Amin. 2022. "The Art of Logic in Muslim Scholarship: A Study of *Mantiq* Transmission and Reception in Indonesia." *Afkar* no. 24:241–274.  
Abstract: "Although the Islamic art of logic (*mantiq*) has circulated for more than two centuries in Indonesia, the *mantiq* works and their functions obtain little academic attention. In this regard, the article aims to study how the *mantiq* works entered and spread in Indonesia and what functions they play in Islamic educational and scholarship settings. This writing employs a qualitative-historical approach by reading critically primary and secondary works of literature related to the study of logics in the Muslim world, especially in Indonesia, in order to analyze how those logical concepts and scholarship spread and are used in Islamic scholarly works in Indonesia. In the end, the article finds that the spread and development of *mantiq* works in Indonesia primarily stem from the international learning networks of Indonesian Muslim scholars ('*ulama*'), centered in Mecca, Madina, and Cairo. The Indonesian '*ulama*', who used to study in the Middle East, brought the *mantiq* to Indonesia. It is instrumental and required knowledge for understanding scientific and scholarly traditions in Islam, such as Islamic law (*fiqh*) and theology (*kalam*). Furthermore, *mantiq* plays a crucial role as an instrument for academic debates among scholars from different religious affiliations on whether religious or non-religious topics."
43. Feldman, Seymour. 1964. "Rescher on Arabic Logic." *Journal of Philosophy* no. 61:724–733.  
"The important facts that emerge from Rescher's historical sketches can be summarized as follows: Arabic logic had its beginnings when the Syriac Christians translated the first four books of the *Organon* (*Isagogue, Categories, De Interpretatione, Prior Analytics*) from Greek into Syriac. These four were the only books of the *Organon* translated into either Syriac or Arabic before the middle of the ninth century. Translations into Arabic began in the ninth century, and were done by Christians. The center of Arabic logical studies was in the East; Baghdad was the first main place of study, followed by Persia. Although the originators and leaders of the former school were Christians, ultimately the school was led by a Moslem, Al-Farabi (870-950), whose fame as a logician is evidenced by Maimonides' insistence that Al-Farabi alone is worthy of study among the modern logicians (*Letter to Samuel ibn Tibbon*). The chief achievements of the Baghdad school were three: (1) the complete translation of the *Organon* into Arabic; (2) commentaries on various books of the *Organon*, among which those of Al-Farabi are of especial importance; and (3) the study of extra-Aristotelian logical topics, such as the conditional

sylogism and analogical inference. As a result of political and theological harassment, the school died out, and Persia became the center of logical study under the leadership of the famous Moslem philosopher Avicenna (980-1037). Avicenna's approach to logic was less committed to devotion to the text of Aristotle, the study of which was becoming more hazardous in Persia. And the logical tradition in Persia was supplemented by material from Galen and the Stoic logicians, especially the Stoics' work on conditional syllogisms and propositions. Eventually, logical studies spread westward to Arabic-speaking Spain and reached their highest development in Averroes (1126-1198). This tradition, however, also died out as a result of religious-political persecution and of sterile techniques of instruction." (p. 720)

44. Firdaus, Qusthan A. H. 2024. *Demonstration and Burhan: A Logical Investigation*. Singapore: Springer.  
"My intention in this book is simply to ease students in Islamic philosophy in specific and Islamic studies in general to learn logic not only as a mere tool but also a developing academic discipline. This is rather different with, for instance, ethics in which case the Western discourse of ethics draws a strict line between ethics and etiquettes. In contrast, I surmise that *akhlak* (morals and its justifications/ethics) and *adab* (a code of conduct, good manners or etiquettes) in Islam seem to be well connected. This connection has many ornaments most of which I cannot understand well. This apology finds its strength on my dormancy to study Arabic." (p. 4)  
"Aristotle disperses his teaching of logic into several books. The ancient commentators categorise them as *Organon*. Since the first century BC, this *Organon* was openly available in Greek and triggered some commentaries and introductions by the early third century BC.(1) This corpus consists of *Categories* (one book), *De Interpretatione* (one book), *Prior Analytics* (two books), *Posterior Analytics* (two books), *Topics* (eight books), and *Sophistical Refutations* (one book). Alexander of Aphrodisias' version of *Organon*, according to Gutas, consists of three more books, to wit, Aristotle's *Rhetoric* (three books), *Poetics* (one book), and *Eisagoge*(2) in addition to those six books.(3)" (p. 7)  
(1) Hodges (2020), p. 9. Al-Farabi was responsible for initiating the notion of *ḥukm* or judgment into the Arabic logic just as he translated Aristotle's accounts of 'denies' and 'affirms' into one, single notion of 'judges.' A further discussion on this issue, please check Hodges (2020), p. 28.  
(2) Aristotle did not write this book but it is Porphyry's introduction to Aristotle's *Categories*.  
(3) Gutas (1999), p. 147.  
References  
Gutas, D. (1999) *Greek thought, Arabic culture: the Graeco-Arabic translation movement in Baghdad and early 'Abbāsīd society (2nd-4th/8th-10th centuries)*, Routledge, London.  
Hodges, W. (2020) *Introduction*. In: Chatti S. Hodges, W. (trans) *Al-Fārābī: syllogism: an abridgement of Aristotle's prior analytics*. Bloomsbury Academic, London, pp. 1-111.
45. Garro, Ibrahim. 1978. "Al Kindi and mathematical logic." *International Logic Review* no. 9:145-149.
46. Germann, Nadja, and Calero, Noel A. Rivera. 2021. "The Causes of Grammar: Ibn Jinnī on the Nature of Language." In *Philosophy and Language in the Islamic World*, edited by Germann, Nadja and Najafī, Mostafa, 49-75. Berlin: de Gruyter.  
"According to Ibn Jinnī, not only does grammar constitute a complex system, that is, an integral whole – most of his colleagues would agree on this point – but it does so as the result of underlying causes – or rather, ultimately, as the result of a particular, unifying cause: the nature of language itself. It is this deep conviction – the driving force behind his *Khaṣā'is* – which compels Ibn Jinnī to oppose the claim made by Jāhīz in the above-mentioned passage, but which in its specific guise simultaneously sets him apart from most *naḥwiyyūn* of his time. This particular unity underlying the wide range of grammatical features will be at the center of this

- paper, whose principal aim consists in bringing out Ibn Jinnī's basic ideas about the phenomenon called language." (p. 50)
47. Giolfo, Manuela E. B., and Hodges, Wilfrid. 2016. "The System of the Sciences of the Arabic Language by Sakkākī: Logic as a Complement of Rhetoric." In *Approaches to the History and Dialectology of Arabic in Honor of Pierre Larcher*, edited by Sartori, Manuel, Giolfo, Manuela E.B. and Cassuto, Philippe, 242–266. Leiden: Brill.
- "Al-Sakkākī's Miftāḥ is widely recognized as having made a radical reorganization of the Arabic science of rhetoric, which had been founded by 'Abd al-Qāhir al-Ġurġānī (d. 471/1078) in *Dalā'il al-'i'ğāz* (Ġurġānī *Dalā'il*) and *'Asrār al-'arabiyya* (Ġurġānī *'Asrār*), bringing it to a form that generated textbooks and commentaries right up to present times. Later writers, both Arab and Western, have taken the heart of the book to be its 'Science of meanings' (*'ilm al-ma'ānī*). For example Qazwīnī (d. 739/1338) in his influential two commentaries (Qazwīnī *'Idāḥ*; Qazwīnī *Šarḥ*) restricts himself to this section of the Miftāḥ.
- Happily we have a German translation of the same section of the Miftāḥ by Udo Gerald Simon (1993), taken from his doctoral dissertation.
- It is interesting that Qazwīnī and Simon stop where they do. Al-Sakkākī himself had added to the section on *'ilm al-ma'ānī* two appendices on logic, one on definition (*al-ḥadd*) and one on syllogism (*al-istidlāl*). Apparently he failed to convince his readers that these appendices had a point.
- (...)
- So it makes sense to look back at the *Miftāḥ* and ask what al-Sakkākī thought he was doing when he added these two appendices.
- The two present authors are a linguist and a logician; we thought we should look at the work together. What we have to report so far is only preliminary. In broad terms our conclusion is that the commentators were right to separate off the material on logic: Sakkākī seems to us to have failed to make any meaningful connection between syllogistic logic and his main theme of *'ilm al-ma'ānī*.
- However, his reactions to logic do raise some interesting points that he seems to have been led to by his linguistic expertise." (pp. 243-243)
48. Goldenberg, Gideon. 2007. "Subject and Predicate in Arab Grammatical Tradition." In *The Early Islamic Grammatical Tradition*, edited by Baalbaki, Ramzi, 301–336. Aldershot: Ashgate.
- "The basic notion of predication, common for the diverse sentence-forms, was in Arab grammatical theory, as elsewhere, one of the fundamental ideas. The clear exposition of predicative relation is not really impaired by the different specific terms used for each of the sentence-types, viz. the nominal and the verbal. In Arab grammatical literature, the treatment of 'nexus' as such, in nominal and verbal sentences alike, is by no means marginal, and, except for the most elementary works, has not usually been neglected. The analysis of nexal relation in Arab grammatical tradition, and the technical terms involved, have been expounded afresh in some meticulous studies published recently,(1) but the repeated criticism of the Arab grammarians as being unable to develop the generalized conceptions of subject and predicate may call for some further comments." (p. 301)
- (...)
- "For better understanding the treatment of predicative relation in medieval Arabic grammar, some evidence will be brought together and examined in the following chapters concerning (1) the terminology of predicative relation, (2) the functional definition of the parts of speech, (3) *kalām* and *gumlah*, (4) the verb as a nexus-complex, and (5) the syntactical exercises of *\*ixbār*." (p. 303)
- (1) Suffice it to mention here Levin: *Musnad* 151-164, Levin: *Distinction* (esp. § 1), AL-Mayyah: *Isnād* (esp. ch. 1 "*ma'ād l-isnād*")
- References
- LEVIN: *Distinction*. — ABYEH LEVIN: The Distinction between Nominal and Verbal Sentences according to the Arab Grammarians. In: *Zeitschrift für arabische Linguistik* 15 (1985), 118-127.

- LEVIN: Musnad. — ABYEH LEVIN: The Grammatical Terms al-musnad, al-musnad 'ilayhi and al-'isnād. In: *Journal of the American Oriental Society* 101 (1981), 145-165.
- AL-MAYYAH: 'Isnād. — RASMIYYAH MUHAMMAD AL-MAYYAH: "Isnād al-fi'l. Baghdad, date given variously as 1965, 1966, 1967.
49. Goldziher, Ignaz. 1981. "The Attitude of Orthodox Islam Toward the "Ancient Sciences"." In *Studies on Islam*, 185–215. Oxford: Oxford University Press. English translation of Ignáz Goldziher, "Stellung der alten islamischen Orthodoxie zu den antiken Wissenschaften," *Abhandlung der Königlichen Akademie der Wissenschaften*, 8 (1915): 3-46.
- "In contrast to the other disciplines belonging to the 'ulūm al-awā'il, orthodox Islam went much farther in developing a position regarding logic. While orthodoxy expressed its distrust of these other fields of Greek learning simply by showing a certain preventive concern, the battle against logic was an opposition of fundamental importance. It (orthodoxy) maintained that the recognition of Aristotle's methods of proof was a serious threat to the validity of religious doctrines. The general attitude of the uneducated was expressed in the saying: "He who practices logic becomes a heretic" (man tamantaqa tazandaqa).(94) Al-Fārābī, whose chief contribution were his commentaries on Aristotle's work on logic, appears to have written a defense of logic (no longer extant) in order to combat this bias. In this work he collected all those sayings of the Prophet that were useful in setting forth, from a religious point of view, a more favorable judgment regarding logic.(95)
- The scholastic theologians (the people of *kalām*) contributed substantially to the religious disparagement of logic. In their rationalistic efforts they ignored the syllogism of demonstrative methods of proof (for which the followers of Aristotle held them in contempt)(96) and believed that for the support of their theses they could manage with premises that were based only on popular acceptance or tendentious biases, without ever having to prove them correct or having to concede them.(97) Mu'tazilite as well as Ash'arite circles produced numerous polemical treatises against Aristotelian philosophy in general and against logic in particular. (98)" (p. 198)
- (...)
- "Although the *mantīq*(108) (the specialist in logic) was not one of the favorites of orthodoxy, as we have seen, it is clear, based on studies of the early 'Abbasid period that the cultivation of logic was favored by the theological authorities and that it was even employed by them in the service of theology." (p. 199)
- (...)
- "Our literary sources show, however, that the viewpoint of those who condemned logic was not victorious in the educational system of Islamic theology. The position expressed in the commentaries, supercommentaries, and marginal glosses (to mention only the most influential sources), which was championed by the logical works of Abhari (an adaptation of the *Isagoge* of Porphyry), Kātibi (*Shamsīya*), Akhdari(151) and the authors of other compendia of logic in Islamic education offers us proof of the fact that the voices of opposition to logic gradually faded away without any lasting results. Even scholastic theology (*kalām*) made use of Aristotelian philosophy (especially from the time of Fakhr ad-Dīn ar-Rāzī [d. 606]) as a methodological tool in the establishment and elaboration of itself." (p. 208)
50. ———. 1994. *On the History of Grammar among the Arabs: An Essay in Literary History*. Philadelphia: John Benjamins.
- Translated from Hungarian [*A nyelvtudomány történetéről az araboknál*, 1878] and edited by Kinga Dévényi, Tamás Ivány.
- "The original Hungarian version of the present treatise, "On the History of Grammar among the Arabs: An Essay in Literary History", was read and discussed at a session of the Hungarian Academy of Sciences on the 16th April 1877. An abstract was published in the annual bulletin of the Academy {*Akadé-miai* 1877, 11.111-112),

while the whole paper (except for Chapter 6) appeared in print in the following year in the linguistic journal of the Academy 1878, 14.309-375).

Goldziher himself considered it a compendium (*Abriß*, as he called it in his Diary) of a major work that he may have planned to prepare in German. A century and a quarter elapsed since its publication but Goldziher's essay still has not become outdated. It seemed worth to make this work known to the world outside Hungary by translating it to English, especially since no similar work has been published. We wanted to preserve as much of the style of the original as it was possible, e.g., some of its long circumstantial sentences and the stylistic devices of a lecture. This latter fact influenced the text in another substantial way: Goldziher, departing from his usual practice, did not cite original (Arabic) passages in the treatise, either in the text or in the footnotes. Thus we considered our task to provide them in the Appendix. This was felt all the more necessary since the original passages in most cases were not translated, but only summarised or paraphrased by him. An asterisk in the text refers to that the original passage is quoted in the Appendix." (*Preface*, p. IX)

"Arabic linguistics developed further [in the 9/10th c. A.D.], at a time when the influence of Greek philosophical literature, of which the Muslim world became the most assiduous and ardent propagator, exposed Arabic thinking to a completely new field. Philosophy, especially in the Eastern territories of Islam, did not remain isolated for long, but soon infiltrated into all areas of thought, even theology, considered by many the adversary of philosophical thinking. It is clear that not even linguistics could be left untouched; it could hardly remain so since the philosophical works, whose study and translation at that time preoccupied the Muslim mind, treated in detail those questions which are usually referred to under the name of linguistic philosophy. These discussions had greatly influenced the thinking of Muslim scholars and they felt compelled to set out to incorporate them in their works." (p. 38)

51. Grunebaum, Gustav Edmund von, ed. 1970. *Logic in Classical Islamic Culture*. Wiesbaden: Otto Harrassowitz.  
Giorgio Levi Della Vida Biennial Conference Proceedings.  
Contents: G. E. von Grunebaum: Presentation of Award to First Recipient, Robert Brunschvig 1; G. E. von Grunebaum: Introduction 5; Robert Brunschvig: Logic and Law in Classical Islam 9; Josef van Ess: The Logical Structure of Islamic Theology 21; Muhsin Mahdi: Language and Logic in Classical Islam 51; Seeger A. Bonebakker: Poets and Critics in the Third Century A. H. 85; Abraham L. Udovitch: The "Law Merchant" of the Medieval Islamic World 113; Index 131-142.
52. Guerrero, Rafael Ramón. 2013. "Aristotle and Ibn Ḥazm. On the Logic of the *Taqrīb*." In *Ibn Ḥazm of Cordoba: The Life and Works of a Controversial Thinker*, edited by Adang, Camilla, Fierro, Maribel and Schmidtke, Sabine, 403–416. Leiden: Brill.  
"One of the earliest surviving works which deals extensively with Aristotelian logic is *al-Taqrīb li-ḥadd al-manṭiq wa-madkhal ilayhi* (*Approximation to the Definition of Logic: an Introduction*), (34) written by Ibn Ḥazm of Cordoba (b. 384/994, d. 456/1064). This text became known through the work of Asín Palacios, (35) who emphasised that its teachings, while broadly Aristotelian, do not coincide with the *Organon*. He also pointed out that Ibn Ḥazm makes use of legal and religious examples. Although the work has already been edited and a few articles have been written on it, (36) a comprehensive study and a complete version of the text are still lacking." (p. 407)  
(34) "*al-Taqrīb li-ḥadd al-manṭiq wa-madkhal ilayhi*," in *Rasā'il Ibn Ḥazm al-Andalusī*, ed. Iḥsān 'Abbās, Beirut <sup>2</sup>1987, vol. 4, pp. 91–356.  
(35) Miguel Asín Palacios, *Abenházam de Córdoba y su Historia crítica de las ideas religiosas*, Madrid 1927–32, vol. 1, pp. 249–251.  
(36) Robert Brunschvig, "Pour ou contre la logique grecque chez les théologiens-juristes de l'Islam: Ibn Hazm, al-Ghazali, Ibn Taymiya," *Oriente e Occidente nel Medioevo: Filosofia e Scienze, Atti del Convegno (dal 9 al 15 aprile 1969)*, Rome

- 1971, pp. 185–209; Abdel Magid Turki, "Notes sur l'évolution du zāhirisme d'Ibn Hazm (456/1063) du Taqrīb à l'Ihkām," *Studia Islamica* 49 (1984), pp. 175–185; Chejne, *Ibn Hazm*, [Chicago 1982] pp. 157–177; idem, "Ibn Hazm of Cordova on Logic," *Journal of the American Oriental Society* 104 (1984), pp. 57–72.
53. Günther, Sebastian. 2025. "Al-Ghazālī on Logic as a Means of Learning. Historical Evidence and Educational Implications." *Al-Abhath*:1–45.  
Abstract: "Renowned for his profound scholarship, the philosophical theologian and mystic Abū Ḥāmid al-Ghazālī (d. 505/1111) has significantly influenced Islamic thought and education for centuries. This article presents a novel approach to studying his body of works. It analyzes six of al-Ghazālī's key works on logic in chronological order, offering a fresh perspective on his views on reasoning. Additionally, the study explicitly focuses on al-Ghazālī's concept of "logic as a tool of learning," leading into an exploration of the relevance of his insights for contemporary humanistic education."
54. Gutas, Dimitri. 1993. "Aspects of Literary Form and Genre in Arabic Logical Works." In *Glosses and Commentaries on Aristotelian Logical Texts: the Syriac, Arabic and Medieval Latin Traditions*, edited by Burnett, Charles, 29–76. London: The Warburg Institute.  
"My aim in this essay has been to add to the above, in the spirit of the present volume, a study of an aspect of Arabic logic that has received no attention. Apart from Endress's necessarily brief statements in a wider context in the *Grundriss*, the literary form which Arabic logical works took and the genres which Arab logicians developed have never been discussed in any detail. This is what I have attempted to do here without making any claims either to exhaustiveness or to inclusiveness. Not all genres that can be witnessed throughout the history of Arabic logic have been mentioned, let alone discussed, and not all periods have been considered with equal attention. The purpose has been to pave the way for more comprehensive studies by establishing a certain framework with regard to terminology and literary forms, highlighting mainstream genres and periods, and pointing to areas of neglect and potential research.  
It would appear from the present state of the art, briefly described here, that the background may have been prepared for the emancipation of Arabic logic from its surrounding areas and its cultivation as an independent field. The next stage of this endeavour will have to consist of a serious and comprehensive study of the tradition of the Arabic *Organon*. Still on the agenda, this time at a higher level of sophistication, are critical editions of the Arabic translations of the remaining books of the *Organon*, critical editions and translations of Arabic commentaries, and perhaps the most important aspect of the entire enterprise, an appreciation of Arabic logic in itself through an evaluation of its contribution to the history of logic in particular and to intellectual history in general." (pp. 30-31)  
References  
G. Endress. 'Die wissenschaftliche Literatur', in *Grundriss der Arabischen Philologie*, ed. H. Gätje. II, Wiesbaden, 1987, pp. 400-506.
55. Gyekie, Kwame. 1971. "The Terms "Prima intentio" and "Secunda intentio" in Arabic Logic." *Speculum* no. 46:32–48.  
"The more passages one examines in the translations from Arabic to Latin and from Arabic to English and other modern languages, the more mistakes one comes across in the translation of the Arabic expression *alā al-qaṣd al-awwal* (or, '*alā al-qaṣd al-thānī*'). The mistakes stem from the failure to distinguish between two senses of the expression, one an adverb, and the other a famous philosophic concept. Failing to distinguish between the two senses, the translators translated the phrase literally, often with unsatisfactory results. In this paper, I shall indicate a Greek word which was rendered by the Arabic '*la al-qaṣd al-awwal*'. I shall refer to some English translations from the Arabic and show how wrong they are. I shall suggest that in Arabic philosophy itself al-Farabi, rather than Avicenna, may have been the origin of the philosophic concepts of "first and second intentions." I shall point out that

although these concepts may have been introduced into Latin scholasticism by Raymond Lull, he could not have derived them from the Logic of al-Ghazali, as has been alleged." (p. 32)

56. ———. 1972. "The term *Istithnā'* in Arabic Logic." *Journal of the American Oriental Society* no. 27:88–92.  
 "The term *istithnā'* is a term used in Arabic logical works which has not, as yet, been given a satisfactory translation. Among the translations of this term which I have come across in modern works are: (a) "exclusion", (1) (b) "exception", (2) (c) "choice", (3) (d) "interpellation", (4) (e) "particular mention", (5) and (f) "disjunction". (6)  
 While the first two (a and b) are the dictionary meanings of the term which, here, are not helpful towards the understanding of the term as it is used in the logic of propositions, the next three (c, d, e) probably arose out of an attempt to make sense of the passages in which the term occurs and, are, strictly speaking, not translations as such. "Disjunction" does not translate *istithnā'* although we shall find later that *istithnā'* syllogisms included the disjunctive." (p. 88)  
 (1) (i) Nicholas Rescher: *Al-Fārābī's Short Commentary on Aristotle's Prior Analytics*, Pittsburgh, 1963, pp. 75 ff. This translation has been found to contain a large number of serious mistakes. See Dr. A. I. Sabra's review in the *Journal of the American Oriental Society*, vol. 85, 1965, pp. 241–43 .  
 (ii) Israel Efros: *Maimonides' Treatise on Logic*, American Academy for Jewish Research, 1938, p. 45. Efros made his translation from an Arabic manuscript in Hebrew characters. The Arabic text was published in 1960 by Mubahat Türker in *Istanbul University: Publications of the Faculty* 1960, vol. 3, pt. 2, pp. 87–110.  
 (2) S. M. Afnan: *Avicenna, His Life and Works*, London, 1958, p. 99. He uses also "exclusion", p. 100.  
 (3) A. M. Goichon: *Lexique*, pp. 32, 33, and Ibn Sina, *Livre des Directives et Remarques*, Paris and Beyrouth, 1951, p. 194, footnote 6, and p. 218, footnote 3, although she regards *istithnā'* propositions as hypothetical" propositions.  
 (4) S. A. Kamali: *A Translation of Al-Ghazālī's Tahāfut al-Falasifah*, Lahore, 1963, p. 145.  
 (5) D. M. Dunlop, "Al-Farabī's Introductory Sections on Logic", *Islamic Quarterly*, vol. 2, no. 4, 1955, p. 270 (Arabic), p. 278 (English tr.).  
 (6) S. Van den Bergh, translation of Averroes' *Tahāfut al-Tahāfut*, London, 1954, vol. 2, p. 146.
57. ———. 1979. *Arabic Logic: Ibn al-Tayyib's Commentary on Porphyry's Eisagoge*. Albany: State University of New York Press.  
 Contents: Preface IX–X; Introduction 1; Logic in Medieval Islam 1; Porphyry's *Eisagoge*: Its Subject Matter 7; Some Points of Philosophical or Logical Interest in this Book 9; Greek Commentaries on the *Eisagoge* 13; Syriac Translations and Commentaries on the *Eisagoge* 16; Arabic Translations and Commentaries on the *Eisagoge* 17; The Manuscripts 20; The Format of Ibn al-Tayyib's Commentary 22; Its Relation to the Alexandrian Commentaries 23; English Translation of the Arabic Text 25; Commentary 159; Notes 219; Glossary of Arabic-Greek Logical Terms. 231; Bibliography 237; Index of Proper Names 243; Index of Arabic Terms Referred to in the Introduction and Commentary 245.  
 "This is a translation and a study of Ibn al-Tayyib's commentary\* on the *Eisagoge* of Porphyry. The study takes into account the "Eisagoge" (*al-Madkhal*) of Avicenna (Ibn Sina), a contemporary of Ibn al-Tayyib. Avicenna's work is, strictly speaking, not a commentary in the sense in which Ibn al-Tayyib's is. That is to say, he, unlike Ibn al-Tayyib, does not quote verbatim a passage from Porphyry's work and comment upon it. His "Eisagoge" is rather a restatement or paraphrase of the subject matter of Porphyry in his own way and with his own views on it. The views of the eminent philosopher, al-Farabi, have, where relevant, also been mentioned. Ibn al-Tayyib's own commentary on the *Categories* (as yet unpublished) has been referred to in a handful of places. The study also takes into account the four extant Greek

commentaries of Ammonius, Elias, Pseudo-Elias and David. Parallels between the commentaries of Ibn al-Tayyib and these Alexandrian scholars have been pointed out in the Commentary." (*Preface*, p. IX)

\* My edition of the Arabic text was published by Dar al-Mashreq (Beirut) in 1975. The translation covers the commentary proper, i.e. excluding Ibn al-Tayyib's own introduction (paragraphs 1-88 of the Arabic text.). Paragraphs 1-347 of the translation thus corresponds to paragraphs 89-437 of the Arabic text.