

History of Logic from Aristotle to Gödel (www.historyoflogic.com)

by Raul Corazzon | e-mail: rc@ontology.co

Ancient Islamic Logic. Selected bibliography of studies in English: Str - Z

Contents

This part of the section [Intercultural logic](#) includes the following pages:

History of Islamic Logic

Islamic (Arabic and Persian) Logic

Bibliography of Studies in English on Language and Logic in Ancient Islam:

[A - B](#)

[C - Gye](#)

[Hal - Mari](#)

[Marm - Sto](#)

[Str - Z \(Current page\)](#)

Bibliography

1. Street, Tony. 2000. "Towards a History of Syllogistic after Avicenna: Notes on Rescher's Studies on Arabic Modal Logic." *Journal of Islamic Studies* no. 11:209–228.
 "The main contributions made by Rescher in these studies [on categorical syllogistic] lie, firstly, in recording the syntax of a system whose central features are common to both writers and, secondly, in putting forward a semantics which seems pretty much inferentially equivalent to that system.
 These are substantial contributions, not only to the study of two logicians [al-Qazwīnī al-Katībī (d. 1276) and Muhammad b. Fayd Allāh b. Muhammad Amīn al-Shirwānī (fl. early 15th c.?)] writing after Avicenna, but also to the study of Avicenna himself, providing us with purchase on systems set down as alternatives to the Avicennian.
 Notwithstanding the important contributions these studies make to the analysis of medieval logic, they suffer from a number of shortcomings."
 (...)

"In my opinion, however, the most serious shortcomings in Rescher's work are the historical conclusions at which he arrives, and his failure to treat the Arabic technical terms. Among his claims regarding the history of logic, Rescher seeks to relate the writings of Qazwīnī and Shirwānī to Avicenna's *Pointers*, and characterizes that relation in ways which are at best distorted, and at worst wrong. The absence of any treatment of the Arabic technical terms for the propositions or operations which are described has meant that the studies have been less useful to Arabists than might otherwise have been the case. What I seek to do in the following is, firstly, to assemble notes aimed at correcting and nuancing Rescher's historical conclusions, and, secondly, to gather some of the important terms together in an incipient conspectus which may help scholars read both Rescher, and the texts with which he worked." (pp. 211-212)

2. ———. 2004. "Arabic Logic." In *Handbook of the History of Logic, Volume 1: Greek, Indian and Arabic Logic*, edited by Gabbay, Dov M. and Woods, John, 523–596. Amsterdam: Elsevier North-Holland.

"This chapter limits itself to logical writings in the peripatetic tradition produced in Arabic between 750 and 1350. It is intended to provide a tentative framework for analysis of these logical works by describing aspects of the historical and intellectual context within which they were written. This is done by testing the model put forward in Rescher's *Development of Arabic Logic* against accounts of the syllogistic in a number of authors.

By about 900, the *Organon* had been translated into Arabic, and was subject to intensive study. We have texts from that time which come in particular from the Baghdad school of philosophy, a school which at its best proceeded by close textual analysis of the Aristotelian corpus. The school's most famous logician was Alfarabi (d. 950), who wrote a number of introductory treatises on logic as well as commentaries on the books of the *Organon*.

(...)

The success and rapid spread of Avicenna's philosophy and logic elicited a strong reaction from establishment theology, whose very intellectual vitality was perceived to be threatened. The clearest and most influential response to Avicenna was given about half a century after his death by Abū Hāmid al-Gazālī (d. 1111). A case had been made at least as early as Alfarabi that logic could help Muslim scholars in juristic and theological reasoning.

Gazālī accepted these arguments and went so far as to preface his juridical summa, *The distillation of the principles of jurisprudence*, with a short treatise on logic.

Logic continued to face pious opposition after Gazālī but even scholars who were opposed to Greek philosophy in its various manifestations were agreed that, taken as a formal system, logic was unobjectionable.

(...)

By 1350, it is clear that the Avicennan tradition predominated over the Farabian and Averroist traditions throughout the Islamic world, and the systematic problems in Avicenna's formal syllogistic were taken as being settled. By this time, texts were being produced which continued to figure in the syllabus of the *madrassa* down until recent times. For centuries after, advanced logical investigations continued in the Islamic world, but the *madrassa* texts were always the way that Muslim scholars had come to be able to conduct those investigations." (pp. 523-524)

3. ———. 2005. "Logic." In *The Cambridge Companion to Arabic Philosophy*, edited by Peter, Adamson and Taylor, Richard C., 247–265. Cambridge: Cambridge University Press.

"A chapter on logic in an introductory book on Islamic philosophy could legitimately be expected to cover a range of topics, from the argument techniques used by ninth-century theologians and jurists to the semantical analyses of the fourteenth-century grammarians.(1)

But by the late tenth century, the Arabic word commonly translated as "logic," *manṭiq*, had come to refer almost exclusively to Peripatetic traditions of distinguishing a good from a bad argument, and those are the traditions to which

this chapter is limited. This means that the Arabic logical writings examined here are, like their medieval Latin counterparts, concerned with a problematic arising from the Aristotelian texts; more than medieval Latin logic, however, the dominant tradition of Arabic logic is mainly at one remove from those texts, as will be exemplified below.

Even with this limitation, the writings which fall under the chapter's remit stretch from 750 to the present day, covering the whole course of subjects developed in the *Organon*. For practical purposes, I impose the further limitation of referring the material covered back to *al-Risāla al-shamsiyya*, the Logic for Shams al-Dīn by Najm al-Dīn al-Kātibī (d. 1276).⁽²⁾ (p. 247)

(1) For information on these interesting topics, see respectively J. van Ess, "The Logical Structure of Islamic Theology," in von Grunebaum [184], 21–50; and B. Weiss, "Ilm al-Wad.': An Introductory Account of a Later Muslim Philological Science," *Arabica* 34 (1987), 339–56.

(2) The whole of the *Shamsiyya* is available in translation, though a new translation is overdue. See A. Sprenger (ed. and trans.), *Bibliotheca Indica: A Collection of Oriental Works*, no. 88: *First Appendix to the Dictionary of Technical Terms used in the Sciences of the Mussulmans, containing the Logic of the Arabians* (Calcutta: 1854); this partial translation is completed in Rescher [178], 39–45. Rescher added to his translation a somewhat faulty analysis of the logic; he corrected it later in his study with A. vander Nat [180].

References

von Grunebaum, G. E. (ed.) [184] *Logic in Classical Islamic Culture* (Wiesbaden: 1970).

Rescher, N. [178] *Temporal Modalities in Arabic Logic* (Dordrecht: 1967).

Rescher, N. and vander Nat, A. [180] "The Theory of Modal Syllogistic in Medieval Arabic Philosophy," in N. Rescher et al. (eds.), *Studies in Modality* (Oxford: 1974), 17–56.

4. ———. 2005. "Fahṛaddīn ar-Rāzī's Critique of Avicennan Logic." In *Logik und Theologie. Das Organon im arabischen und im lateinischen Mittelalter*, edited by Perler, Dominik and Rudolph, Ulrich, 99–116. Leiden: Brill.

"This study is a preliminary exploration of certain changes introduced into the modal syllogistic over the two and a half centuries following Avicenna's death. (...)

Unsurprisingly – given the title of this paper – the scholar advancing the argument is Fahṛaddīn ar-Rāzī (d. 1210). The specific change I focus on here is one which is apparent on comparing the system put forward in the works of Avicenna⁽²⁾ (d. 1037) with the one put forward in the much-studied *Logic for Šamsaddīn*⁽³⁾ written by Nag-maddīn al-Kātibī (d. 1276). There are actually a number of differences between the system of Kātibī and that of Avicenna, but here I concentrate on one relating to syllogisms with *dātī* premises (*dātī* is explained below) and whether or not they are productive with possible minors. This difference creates only a few further differences between the two systems. But Kātibī's decision to differ from Avicenna seems to me to mark deeper changes relative to the perceived role and function of the syllogistic, the cultural significance of Aristotle, and the importance of the theological concerns of the day for logic.

And one argument for the moves Kātibī makes is given by Rāzī.

In the following, I make a few general comments about how we have to go about the study of Rāzī's logic, and then sketch relevant aspects of Avicenna's and Kātibī's systems. I go on to state the argument advanced by Rāzī, and to note some of the differences among the three logicians. I conclude with some points relative to the development of post-Avicennan logic and the possible importance of theological concerns for that development." (pp. 99-100)

"The *dātī* reading is concerned with the things picked out at least once by the subject term as long as they exist as a substance (*mā dāma mawgūda d-dāt*), and by the predicate according to the proposition's modality or temporality.

This is probably best explained by way of example. All sitting may be standing is true as a *dātī* reading; each person who sits can at a later time stand, all other things being equal." (p. 102)

(2) For an outline of the system, with an exposition of all technical terms, assumptions and proofs, see Street (2002).

(3) Kātibī, *Šamsiyya*.

5. ———. 2008. "Rescher on Arabic Logic." In *Rescher Studies: A Collection of Essays on the Philosophical Work of Nicholas Rescher*, edited by Almeder, Robert, 309–324. Frankfurt: Ontos Verlag.

"The study of Arabic philosophy has come on by leaps and bounds in recent years, as is clear from a bibliography of the field compiled in 1999 by Hans Daiber. (1) Of course, the work going on at the moment depends in large measure on the great pioneering studies of years ago. Those studies are dutifully and compendiously listed by Daiber, and among them are thirty-five publications by Nicholas Rescher, mainly on Arabic logic. (2)

I do not intend in this paper to go through more than a few of these contributions; indeed, I limit myself to Rescher's overview history of Arabic logic, the *Development of Arabic Logic*, and his series of studies on Arabic modal syllogistic as laid out by Nağmaddīn al-Qazwīnī al-Kātibī (d. 1276; henceforth Kātibī) and Muhammad ibn Faydallāh aš-Šīrwānī (d. 1707). (3)

In what follows, I direct a number of critical remarks to aspects of these contributions, and it will be helpful if I make clear at the outset the nature of the debt that students of Arabic logic owe to Rescher. None of the current work on Arabic syllogistic would be possible without Rescher's studies.

And even today, no one dares write about Arabic logicians, particularly those after Avicenna, without citing *Development*. With Rescher's work on Arabic logic, in short, we are confronted by one of those rare cases in scholarship where a scholar has single-handedly opened up a field." (p. 309)

(1) Daiber [1999].

(2) Daiber [1999] 1: 776-771.

(3) Khaled El-Rouayheb has shown, in a study yet to be published, that the logical text in British Library codex Or. 12405 is in fact written by an Ottoman scholar Muhammad Sādiq ibn Faydallāh ibn Muhammad Amin ibn Sadraddīn aš-Šīrwānī, 1630-1707, a number of centuries after the time Rescher thought he lived. This means that the text analysed by Rescher in his later studies of Arabic modal logic was written at pretty much the same time as the Port-Royal Logic.

References

Daiber, H., *Bibliography of Islamic Philosophy*, 2 vols. (Leiden: Brill, 1999).

6. ———. 2008. "Suhrawardī on Modal Syllogisms." In *Islamic Thought in the Middle Ages: Studies in Text, Transmission and Translation, in Honour of Hans Daiber*, edited by Akasoy, Anna and Raven, Wim, 163–178. Leiden: Brill.
"On first encounter, Suhrawardī's modal syllogistic in the *Philosophy of Illumination* looks to be quite different from Avicenna's. Closer inspection, however, reveals that Suhrawardī's system is deeply Avicennan, more so than, for example, the system in Najm al-Dīn al-Kātibī's *Shamsiyya*. In this paper I examine what Suhrawardī achieves by reading all modal propositions as embedded in the phrase 'by necessity' (*bi'l-ḍarūra*), what help it can offer the historian of Arabic logic, and what it means for assessing Suhrawardī's larger philosophical project." (p. 163)
7. ———. 2014. "Afdal al-Dīn al-Khunājī (d. 1248) on the conversion of modal propositions." *Oriens* no. 42:454–513.
Abstract: "Afdal al-Dīn al-Khunājī (d. 1248) was an Arabic logician working in thirteenth-century Cairo. Responding to the logical writings of both Avicenna and Fakhr al-Dīn al-Rāzī, he produced highly innovative work that set the agenda for the subsequent logical tradition.

In this study, the chapter on conversion from Khūnajī's magnum opus, *Kashf al-Aṣrār 'an Ghawāmiḍ al-Afkār* (*The Disclosure of Secrets as to the Obscurities of Thoughts*), is translated and provided with a commentary. The chapter serves to highlight, among other things, the way Khūnajī understood a proposition in the essentialist (*ḥaqīqī*) reading."

8. ———. 2016. "Al-‘Allāma al-Ḥillī (d. 1325) and the Early Reception of Kātibī's *Shamsīya*: Notes towards a Study of the Dynamics of Post-Avicennan Logical Commentary." *Oriens* no. 44:267–300.
Abstract: "*Al-Risāla al-Shamsīya fī l-qawā'id al-manṭiqīya* by Najm al-Dīn al-Kātibī (d. 1277) is one of the most widely-read textbooks on logic ever written. Its first readers, however, were less enthusiastic about it than later generations proved to be. In the earliest commentary written on the *Shamsīya*, al-‘Allāma al-Ḥillī (d. 1325) expressed serious reservations about a number of Kātibī's decisions, decisions which developed ideas first put forward by Fakhr al-Dīn al-Rāzī (d. 1210). In the following article, I examine how the commentary Ḥillī wrote on the *Shamsīya*, *al-Qawā'id al-jalīya fī sharḥ al-Risāla al-Shamsīya*, fits in with his other works on logic, and how it responds to Kātibī's logical program in general and to the syllogistic in particular. When set against the preceding two centuries of commentary on Avicenna's *Kitāb al-Ishārāt wa-l-tanbīhāt*, Ḥillī's response to the *Shamsīya*—and indeed Kātibī's writing of the *Shamsīya* itself—can be seen as seamlessly carrying forward a commentary tradition in which Rāzī and Naṣīr al-Dīn al-Ṭūsī (d. 1274) figure prominently. The first appendix to the article examines the transformation of a lemma in the *Ishārāt* into the corresponding lemma in the *Shamsīya* through 150 years of commentatorial debate; the second appendix presents translations of a number of texts on syllogistic from *al-Qawā'id al-jalīya*."
9. ———. 2017. "Kātibī (d. 1277), Taḥṭānī (d. 1365), and the *Shamsiyya*." In *The Oxford Handbook of Islamic Philosophy*, edited by El-Rouahyeb, Khaled and Schmidtke, Sabine, 348–374. New York: Oxford University Press.
"The *Epistle for Shams al-Dīn on the Rules of Logic*— for short, the *Shamsiyya*— is a remarkable book.(1) It is one of the most widely read logic texts of all time. Written sometime after 1262 by Najm al-Dīn al-Kātibī (d. 675/ 1277), it attained immediate celebrity that it continues to enjoy down to today. It has been widely taught in madrasas, especially in the arc of Muslim countries running from Egypt through to India. So popular did it become, it effectively replaced the volume on logic in Avicenna's *Pointers and Reminders* (*al-Ishārāt wa-l-tanbīhāt*) (normally read with Naṣīr al-Dīn al-Ṭūsī's *Solution to the Problems of Pointers*);(2) most manuscripts of *Pointers and Solution* copied after 1400 no longer contain the logic section. Ultimately, as we shall see, even specialists in logic began to look on *Shamsiyya* logic as Avicenna's logic." (p. 348)
(...)
"The commentary with which it was most commonly read was written by Quṭb al-Dīn al- Rāzī al-Taḥṭānī (d. 766/1365) in 1329, the Redaction of the *Rules of Logic in Commentary on the Epistle for Shams al-Dīn*. The *Redaction* is a classic in itself; indeed, the supercommentaries on it outnumber the commentaries on the *Shamsiyya* (Wisnovsky 2004, 163– 65)." (p. 348)
(...)
"In what follows, I say a few words about Kātibī and his working circumstances; I say even fewer about Taḥṭānī. I go on to reflect on the *Shamsiyya*, its structure, contents, and the broader project it forms part of. In the third section I consider two of Kātibī's logical proofs. I then concentrate on a short but significant section of the text (3 of the text's 120 lemmata) to show how immediately preceding discussions led Kātibī to write what we find in the *Shamsiyya*. Throughout, I draw on material from Taḥṭānī's commentary to illustrate the nature of that work. In conclusion, I glance at the career of the *Shamsiyya* and its logical doctrine in the centuries after Kātibī's death.
The chapter has two appendices. One is a table of the *Shamsiyya*'s contents. The second is a concordance (table 16.1) to help navigate between the Arabic of the

Shamsiyya, its English translation, and my numbering of the lemmata." (p. 349)
 (1) Taḥṭānī, *Taḥrīr* (1948) contains the text of the *Shamsiyya* I have used; it also contains Taḥṭānī's *Redaction*.

(2) Ṭūsī, *Hall*; I check this version against MS British Library Or. 10901.

References

Street Tony (ed.), *Najm al-Dīn al-Kātibī's al-Risālah al-Shamsiyyah*. An Edition and Translation with Commentary, New York: New York University Press 2024.

Taḥṭānī, Muḥammad ibn Muḥammad Quṭb al-Dīn. 1948. *Taḥrīr al-qawā'id al-mantiqīyah fī sharḥ al-risālah al-shamsiyyah*. Cairo: Ḥalabī and Sons.

Ṭūsī, Naṣīr al-Dīn. (Hall) 1971. *Hall mushkilāt al-Ishārāt*. Ed. S. Dunya. Cairo: Dār al-Ma'ārif.

Wisnovsky, Robert. 2004. The Nature and Scope of Arabic Philosophical Commentary in Postclassical (ca. 1100– 1900 AD) Islamic Intellectual History: Some Preliminary Observations. In *Philosophy, Science and Exegesis in Greek, Arabic and Latin Commentaries*, vol. 2, ed. H. Baltussen, M. W. F. Stone, and P. Adamson. London: Institute of Classical Studies, 149– 91.

10. ———. 2021. "The Reception of *Pointers 1.6* in Thirteenth-Century Logic: On the Expression's Signification of Meaning." In *Philosophy and Language in the Islamic World*, edited by Germann, Nadja and Najafī, Mostafa, 101–128. Berlin: de Gruyter. "This volume is loosely limited to the period from 800 to 1200. I am grateful for the latitude the editors have given me in writing the following paper; many of the texts I consult and quote come from the late thirteenth century. They are, however, all directed to a body of doctrine that was first formulated by Avicenna in the first half of the eleventh century. The thirteenth-century treatment of that doctrine was shaped by two books written by Fakhr al-Dīn al-Rāzī (d. 1210) in the late twelfth century, books written to question the rigour of many of Avicenna's formulations. The thirteenth-century texts quoted here are, in short, part of a process of reception of a doctrine developed and then challenged through the last two centuries of the period on which the volume focuses. Specifically, the texts are devoted to an account of a fundamental aspect of the philosophy of language, namely, the relation of signification (*dalāla*) between an expression (*lafẓ*) and the meaning (*ma'nan*) or – nearly always – meanings (*ma'ānin*) it signifies." (p. 101, a note omitted)
11. ———. 2021. "Abū l-Barakāt al-Baḡdādī and the Traditions of Arabic Logic." *Studia graeco-arabica* no. 11:41–66.
 Abstract: "In the anonymous *al-Nukat wa-l-fawā'id*, a summa of Avicennan philosophy written around 1200, a partisan of Avicenna accuses Fakhr al-Dīn al-Rāzī (d. 1210) of having come under the influence of the reprehensible Leader of the Jews, Abū l-Barakāt al-Baḡdādī (d. c. 1165). The reasons for the anonymous author's antipathy toward Abū l-Barakāt relate to the way Avicenna's contribution to logic is both pillaged and pilloried in stretches of *al-Kitāb al-mu'tabar*. The claim that Abū l-Barakāt exercised direct influence over Fakhr al-Dīn is, at least in logic, unlikely to be true. Nonetheless, Abū l-Barakāt's presentation and methods highlight significant changes in the methods of the later traditions of Arabic logic."
12. ———. 2025. "A Thirteenth-Century Debate About Avicenna's Definitions of Differentia." *The Monist* no. 108:306–317.
 Abstract: "Avicenna (d. 1037) gave two different definitions of *differentia*, the first, in the Introduction of the *Cure*, the second, in *Pointers and Reminders*. In the 1230s, Afḍal al-Dīn al-Khūnajī (d. 1248) was spurred to consider the relative superiority of the two definitions by a question posed fifty years earlier by Fakhr al-Dīn al-Rāzī (d. 1210). Khūnajī argued that the *Pointers* definition was superior to that in the *Cure*; his argument turns on criteria used to assess a deduction of the predicables. Toward the end of the thirteenth century, Shams al-Dīn al-Samarqandī (d. 1322) came to the defence of the *Cure* definition. In his argument against Khūnajī, Samarqandī seems to have relied on claims made in demonstration theory about, first, the hierarchy of the sciences, and second, scientific questions."

I conclude by considering whether Rāzī's theological commitments influence how he approached these logical problems. The material presented in this paper represents a fraction of the contributions made to defining *differentia* and, in consequence, an even smaller fraction of the discussions of universals in thirteenth-century Arabic logic."

13. Strobino, Riccardo, and Thom, Paul. 2016. "The Logic of Modalities." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Read, Stephen, 342–369. Cambridge: Cambridge University Press.
The Arabic Tradition, pp. 343-359.
 "Avicenna (d. 1037) is the most influential logician in the Arabic tradition. His late work *al-Ishārāt wa-t-tanbīhāt* (*Pointers and Reminders*) became for subsequent generations the canonical text to discuss and refer to, replacing Aristotle both as a textual source and in terms of doctrine, until it was itself supplanted by Kātibī's (d. 1276) *al-Risāla al-Shamsiyya* (*Epistle for Shams al-Dīn*). Many of Avicenna's innovative contributions to the history of logic are related to modalities. Even though modal notions are central to other areas of his philosophy, especially metaphysics, we will focus here only on the logic." (p. 343)
 (...)
 "Post- Avicennan Arabic modal logic is still to a large extent uncharted territory: recent groundbreaking work has only started to reveal the enormous wealth of interesting and sophisticated materials it offers, and foundations are in the process of being laid in the form of critical editions, translations and studies.(1) Post-Avicennan logicians depend primarily on Avicenna's exposition of his modal logic in *al-Ishārāt* and focus on problems that are characteristic of it. Among them, the interpretation of the subject term and the evaluation of syllogisms with possibility minors are the object of special controversy." (p. 348)
14. Stroumsa, Sarah. 2020. "Logic as Interconfessional Weapon in the Early Islamicate World: *Manṭiq, Qiyās, Kalām*." *Journal of Eastern Christian Studies* no. 72:181–201.
 Abstract: "The present paper focuses on the use of logic (including Aristotelian logic) by Arabic-speaking theologians in the formative period of theology in Arabic, especially in polemical settings. It attempts to draw on the evidence regarding a somewhat neglected edge of the monotheistic triangle, namely the Arabic-speaking Jewish theologians in the third/ninth and fourth/tenth century."
 "In studying the logic of *kalām*, van Ess has pointed to its peculiarities, and to the fact that they reflect a non-Aristotelian logical system. For instance, *kalām* texts do not use syllogistic proofs but rather resort to inference from 'an indicative sign' (*dalīl*, pl. *dalā'il*), which, according to van Ess, translates the Stoic *sēmeion*. At times, the word *burhān*, the Arabic Aristotelian term for apodictic proof, would also be used, with the same non-syllogistic meaning.
 Thus, the presence of smoke is an indicative sign for the existence of fire; the presence of a finely written book is an indicative sign for the existence of a competent scribe. In this and other matters, van Ess pointed to the Stoics as one possible source of inspiration for the logical structure of *kalām*, but we have no idea how the early mutakallimūn could come by this Stoic logic.(22) (p. 188)
 (22) J- Van Ess, 'The Logical Structure of Islamic Theology', in *Logic in Classical Islamic Culture*, ed. G. E. von Grunebaum (Wiesbaden, 1970), pp. 21-77, pp. 31-32; See also F. Jadaane, *L'influence du stoïcisme sur la pensée musulmane* (Beirut, 1968), p. 97 and pp. 113-115; G. Freudenthal, 'Stoic Physics in the Writings of R. Saadya Ga'on Al-Fayyumi and Its Aftermath in Medieval Jewish Mysticism', *Arabic Sciences and Philosophy*, 6 (1996), pp. 113-136.
15. Taç, Afife Şeyma 2019. "How to Define Definition: An Analysis on the Dispute about the Relation between the *Definiens* and the *Definiendum* in the Post-Avicennan Arabic Logic." *Entelekyia Logico-Metaphysical Review* no. 3:5–19.
 Abstract: "As standing at the very heart of the conception (*taşawwur*), definition is not only the ultimate purpose of conception but also paves the way for the assent

(*taṣdīq*). Therefore, it would merely be surprising to find definition sections at right after the principles of conception, namely five universals, and before the first part of assent, viz. the proposition, in the books compiled through the tradition of post-Avicennan Arabic logic. Having begun with identifying what definition is, definition sections proceed with its conditions, types, and the things that violate an ideal definition. This paper focuses on the absolute definition itself by considering it as a *definiendum* and its definition as its *definiens* to analyse whether this *definiens* satisfies one particular condition set in definition theory, namely the condition that a *definiens* must not be applied to anything other than the *definiendum*. In terms of this specific rule, we encounter with two opposing views on the convenience of the terms implying “necessity” (*istilzām*) utilized when formulating the *definiens* of absolute definition."

16. Tahir, Umar Sheikh Tahir. 2018. "Arabic Grammar and Logic Debates at Medieval ages: a Quest for Muslim Contributions to Philosophical Development." *Al-Habir: Journal of Islamic Studies* no. 2:158–178.
Abstract: "This paper focuses on historiography of relationship between Logic and Arabic grammar in the Muslim Medieval Ages (a period between 750 and 1100/ 150 and 500 Ah) This sensation appears in the famous debate among many others between grammarians represent by abū Sa'id al-Sairafī and logicians represent by abū Bishr Mattā on Logic and its validity. This incident took place in Baghdad around 932 AD. However, this study singlehandedly samples these debates as the base for the contributions of Islamic philosophers to philosophy of language as well as Epistemology. The question that shapes this research is: What is the intellectual development for Muslim thinkers to philosophy of language in regards to this debate? The current research addresses the Arabic grammar and logical debates by conducting historiography to emphasize on Islamic philosophers' concerns about this issue. Consequently, this debate generates philosophical phenomena and resolutions in deep-thinking using philosophical mode. In addition, these dialogues create a language impression for Philosophy in Islamic world from the period under study. Thereupon, Islamic philosophers' discourse on this phenomenon serves as contribution to the Philosophy of Language."
17. Talmon, Rafael. 2005. "Ġāya, ṣifa and al-kalām al-wāṣif in Ibn Muqaffa's manual of logic: new considerations about the beginning of Arabic grammar." *Jerusalem Studies in Arabic and Islam* no. 30:506–520.
18. Tekin, Ali. 2018. "On Arabic-Islamic Logic and Philosophy: Some Notes and Interview with Charles E. Butterworth." *Beytulhikme: An International Journal of Philosophy* no. 8:871–884.
"Prof. Charles E. Butterworth and his predecessors have made important contributions to the classical philosophy with the editions, translations and studies of that philosophical text from a philosophical perspective and commented on them in this purpose. To understand the world and the life philosophically and the history of philosophy we need to study on those classical texts forever. Although we have many important studies in Arabic and Islamic philosophy there are many works that still waiting to be unearthed. Prof. Charles E. Butterworth has many editions and translations as we said above. He has been editing and translating Alfārābī's the *Book of Letters* and Ibn Rushd's all of *Short Commentaries on Logic* and we wait for those studies to read and comment. To learn about him and his experiences and studies we talked with Prof. Charles E. Butterworth about his academic journey and Arabic-Islamic logic and philosophy.
The interview was done on July 27, 2018, at Georgetown University Lauinger Library, Washington, D. C. We hope this interview is going to be useful and helpful for those who study on Arabic logic and philosophy." (p. 874)
19. ———. 2024. "Commentary Styles of Peripatetic Islamic Logicians on Aristotle's Definition of Syllogism." *Entelekyia Logico-Metaphysical Review* no. 8:27–45.
Abstract: "Aristotle (d. 322 BC) was the first philosopher in the history of thought to examine all modes and types of belief acquisition such as knowledge,

supposition, error and indirectly imagination. In his *Prior Analytics*, which he wrote primarily to clarify his theory of demonstration, Aristotle examined in detail the syllogism, which he saw as the most important form of reasoning, and his analysis was subject to interpretation by different traditions of thought for centuries.

Aristotle's *Prior Analytics* was translated into Arabic in the classical period and later interpreted by many Islamic logicians. This article aims to show how Aristotle's definition of the syllogism in the *Prior Analytics* was taken up and interpreted in the Peripatetic Islamic logical tradition. These interpretations of the definition of the syllogism will provide us with an idea about the unique features of the commentaries on the *Prior Analytics* in the Islamic world.

Here, introductory information about the translation of the *Prior Analytics* into Arabic and its commentators in Arabic will be given, Aristotle's definition of the syllogism and its versions in Peripatetic Islamic logicians will be indicated, and the interpretation of the basic terms in the definition by Peripatetic Islamic logicians will be revealed."

20. Thom, Paul. 2003. *Medieval Modal Systems: Problems and Concepts*. Aldershot: Ashgate.
Reprint New York: Routledge 2017. Chapter 4: *Avicenna*, 65-80; Chapter 5: *Averrões*, 81-91.
Chaper 5:
"Summary.
Averroes's late investigations into modal syllogistic do not propound an unambiguous theory. Nonetheless, two features of his thought appear to emerge. First there is his explicit deployment of essentialist notions in an attempt to clarify Aristotle's logic. He distinguishes a *per se* from a *per accidens* sense of modal propositions, making use of the *per se* sense when dealing with the LLL moods. This idea will find a following in thirteenth-century Latin writers, led by Robert Kilwardby. The *per se* in any domain is determined not just by the way things are, but by the way they are described (for example, to deny that the Chancellor *per se* is a member of the Board of Governors is to speak not simply of the human being who is Chancellor but rather of that person under the description 'Chancellor'). A *per se* necessity would therefore be one that depended not just on how things are but on how they are described. Averrões' s use of the notion of *per se* necessity thus stands (along with Avicenna's ampliationist analysis) as an alternative to the Abélardian *de rebus* analysis of modals. It is more successful than the ampliationist approach in that it secures all the Aristotelian modal conversion-principles, not just those for Le- and Mi-propositions.
By virtue of those principles, the pure necessity-moods in Figures 2 and 3, other than Baroco and Bocardo, reduce to the first figure, thus permitting a base consisting of the first-figure LLL moods along with
Baroco and Bocardo LLL.
Second, Averrões thinks that in mixed syllogisms the conclusion expresses a different, and derivative, kind of necessity than does the modal premise. In other words, he sees the syllogism as marking a transition from a central strong sense of necessity to a derivative sense, rather than simply as a logical link between two necessity-propositions mediated by an assertoric. This way of seeing mixed necessity-syllogisms will be taken up in the twentieth century by Ulrich Nortmann, who proposes a 'rule of thumb' according to which, when an equivocal expression occurs in a premise as well as in the conclusion of a syllogism, it should be interpreted in its strong sense in the premise and in its weak sense in the conclusion.
(20)" (pp. 90-91)
(20) Nortmann, U. (1996), *Modale Syllogismen, mögliche Welten, Essentialismus: eine Analyse der aristotelischen Modallogik*, Walter de Gruyter, Berlin. p. 126.
21. ———. 2010. "Abharī on the Logic of Conjunctive Terms." *Arabic Sciences and Philosophy* no. 20:105–117.
Abstract: "The Persian philosopher Aṭīr al-Dīn al-Abharī (d. 1265), in his *Revealing Thoughts*, sketches out several different logics of propositions containing complex

terms such as 'writing man'. I will outline his results and the criticisms of them made by Naṣīr al-Dīn al-Tūsī (d. 1274) in his *Setting the Scale* for an Evaluation of "Revealing Thoughts", and I will compare Abharī's various logics of complex terms with modern treatments."

22. ———. 2016. "The Syllogism and Its Transformations." In *The Cambridge Companion to Medieval Logic*, edited by Novaes, Catarina Dutilh and Stephen, Read, 290–315. Cambridge: Cambridge University Press.
"Every medieval logic compendium, and every medieval commentary on Aristotle's *Analytics*, has something to say about the syllogism.
While there is a core of standard logical syllogistic theory that is unchanging across the Middle Ages, there are also significant theoretical differences from one author to another. Some of these concern the very definition of the syllogism. Aristotle had crafted the classic definition; but at different times during the Middle Ages, and in different traditions, opinions differed on how much of the Aristotelian definition should be retained, and how the retained clauses should be interpreted. In this chapter, we examine some of the more interesting transformations that the definition of the syllogism underwent in the Arabic and Latin Middle Ages." (p. 290)
(...)
"Summary
The Aristotelian definition of the syllogism, as it was transmitted in Arabic, underwent a number of simplifications in the later writings of Avicenna, simplifications that were widely, though not universally, adopted in the Arabic tradition. In the Latin tradition, things started a little differently, with a focus on dialectical syllogisms; and the Latins took an interest in redundancy that does not seem to have been prominent among the Arabs. A tendency towards simplification is evident in both traditions. Some of these simplifications had the effect of broadening the class of syllogisms, some providing it with a more elegant definition. In both traditions, interest came to focus on syllogistic theory itself, at the expense of its application to everyday argumentation.
Both traditions were exercised about the question whether *per impossibile* reasoning could be analysed into some combination of ostensive syllogisms. Avicenna's view, highly original though it was, was not universally taken up by later logicians; many preferred to stay closer to what Aristotle had said on the matter.
Both traditions reflected on the question whether there are syllogisms from impossible premises. These reflections led a few logicians in both traditions to semantic insights that to some extent anticipate Smiley's work on the syllogism." (p. 315)
References
Smiley, T. J. 1973. 'What Is a Syllogism?' *Journal of Philosophical Logic* 2: 136–154.

23. ———. 2016. "Necessity in Avicenna and the Arabic Tradition." In *Logical Modalities from Aristotle to Carnap: The Story of Necessity*, edited by Cresswell, Max, Mares, Edwin and Rini, Adriane, 91–112. Cambridge: Cambridge University Press.
"Introduction
The expression 'Arabic logic' is used by scholars to cover a tradition of writing over a period stretching from the eighth century to the present day. The treatises and handbooks that belong to this tradition were written in various languages, including Arabic, Persian, Turkish, Hebrew, and Urdu. The central figures are Alfarabi (d. 950), Avicenna (d. 1037) and Averroes (d. 1198) (Street 2013a, introduction). Because of limitations of space, this chapter will omit Alfarabi, discussing only Avicenna and some of the more significant thinkers (including Averroes) whose work is based on, or reacts against, the latter's logical theories." (p. 91)
(...)
"Summary
The Arabic logicians analysed necessity-propositions by considering various sorts of things to which the necessity which these propositions express is relative. The two

most important relativities are to the subject-term's underlying essence, and to the description explicitly given by the subject-term.

The post- Avicennian logicians also distinguished those necessity-propositions whose subject is picked out purely extensionally from those where the subject is identified intensionally. Some of the thirteenth-century logicians extended the application of intensional propositions to those having impossible subjects. The distinction between extensional and intensional necessities can be combined with the essential / descriptive distinction.

There is no concept of purely logical necessity among the Arabic logicians surveyed. The necessity of the Necessary Being's existence is ontological. The necessity of essentially necessary propositions like Man is an animal depends on a metaphysical concept of essence. Even the necessity of a descriptively necessary proposition like 'Whatever walks moves' derives its necessity from the essential necessity 'Walking is a species of movement'." (pp. 110-111)

24. ———. 2016. "On Logics of *genus* and *differentia* in the Aristotelian Tradition." *Documenti e Studi sulla Tradizione Filosofica Medievale* no. 27:131–162.

25. ———. 2019. "Averroes' Logic." In *Interpreting Averroes: Critical Essays*, edited by Adamson, Peter and Di Giovanni, Matteo, 81–95. Cambridge: Cambridge University Press.

"Conclusions

(...)

As an original logician, his account of necessity, while not itself a "statistical" one, nevertheless contains elements that when detached can serve as the foundation of a "statistical" interpretation of the modalities.

His work on the character of the terms in modal predications constitutes an important step in the history of essentialist construals of modality and anticipates the work of Marko Malink.⁽³⁷⁾ His confrontation with Avicenna on the nature of simple and compound predicates is driven by a refusal to restrict logical theory to the investigation of terms having fixed meanings.

He does not think this is the way Aristotle did logic, and he does not think it is the way logic should be done: in his view, the proper discussion of simple and compound predicates requires a sensitivity to the variability of meanings in different contexts. His critique of Avicenna on necessity raises fundamental questions about the way necessary propositions should be understood. And his view that certain types of proposition have a double aspect, as either necessary or assertoric, exhibits his subtlety as a logician." (p. 95)

(37) See Malink, M. 2013. *Aristotle's Modal Syllogistic*. Cambridge, MA.

26. ———. 2025. "Al-Kātibī's Deduction of the Predicables." 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, 186–207. Leiden: Brill.

"Introduction

Porphyry's *Eisagoge* distinguishes five types of concept: genera, species, differentiae, propria and accidents. Scholars have wondered whether this list rests on a rational principle, so that it had to have exactly five members, and those members had to be just as Porphyry describes them. Among the attempts to articulate such a rational basis for the list, the account given by Najm ad-Dīn al-Kātibī is specially interesting." (p. 186)

(...)

"Al-Kātibī's results can be summarized as follows. A multiple-species genus such as body is a quiddity of all its particulars, is a part of a quiddity of all its particulars (e.g., is a part of *animal*), and has particulars belonging to several quiddities (e.g., *human* and *horse*). A single-species genus is distinguished by not belonging to several quiddities. A higher species like *animal* is distinguished from a lowest species by belonging to several quiddities. A higher differentia like *sensate* is distinguished from a lowest differentia by belonging to several quiddities.")p. 203)

27. Thomann, Johannes. 2022. "Logic: Didactics and visual representations." In *Routledge Handbook on the Sciences in Islamicate Societies*, edited by Brentjes, Sonja, Barker, Peter and Brentjes, Rana, 419–435. New York: Routledge.
"This chapter does not contain a general history of logical literature in the Islamicate world. Excellent surveys of Arabic texts on logic exist (Endreß 1992, 47–57; el-Rouayheb 2011, 2019; Street 2016; Rudolph et al. 2016). Instead, following the aim of this volume, practical aspects of logic are addressed. Some of these aspects have not been studied well or at all. The topics chosen are learning logic, controversies on logic and integration of logic into other scientific disciplines. This chapter consists therefore of a set of examples and unavoidably lacks historical continuity." (p. 419)
(1) The spelling of this name in German publications is Endreß, in English publications Endress.
References
Endreß, G. 1992. "Die wissenschaftliche Literatur," in Fischer, W., ed. *Grundriß der Arabischen Philologie*, Bd. III: Supplement. Wiesbaden: Reichert Verlag, 3–152.
el-Rouayheb, K. 2011. "Logic in the Arabic and Islamic World," in Lagerlund, H., ed. *Encyclopedia of Medieval Philosophy*. Dordrecht: Springer, 686–92.
el-Rouayheb, K. 2019. *The development of Arabic logic (1200–1800)* (Medieval and Early Modern Philosophy 2). Basel: Schwabe.
el-Rouayheb, K. and Schmidtke, S., eds. 2016. *The Oxford Handbook of Islamic Philosophy*. Oxford: University Press.
Street, T. 2016. "Kātibī (d. 1277), Tahtānī (d. 1365), and the Shamsiyya," in el-Rouayheb and Schmidtke, eds., 348–74.
28. Towpek, Yaman, and Salleh, Kamarudin. 2016. "The Objectives and References of *Mi'yār al-'Ilm fī Fann al-Mantiq*." *International Journal of Islamic Thought* no. 9:72–86.
Abstract: "*Mi'yār al-'Ilm fī Fann al-Mantiq* of al-Ghazali is the first book written specifically on Muslim logic. But the comprehensive and exclusive study on the essence of its scientific contents of the book and its significance in developing scientific thinking has never been done. Thus this study investigates the objectives and referral sources of *Mi'yār* writing. This qualitative study uses content analysis method. The data which were collected using the documentation has been analyzed using the inductive, deductive, and comparative methods. The process of analysis of logic in *Mi'yār* be done using textual analysis or textual content analysis and constant comparison method. It is because of this study is a textual study. This study found that *Mi'yār* written by two objectives. Firstly; to provide an understanding on the methodologies of thinking and researching, and explain the rules of constructing syllogisms and analogies. Secondly; to review the matters which have been written in *Tahafut*. The study also found that al-Ghazali wrote *Mi'yār* based on three books, a book of his own, namely *Maqasid*, and two books of Ibn Sina, namely *al-Isharat* and *al-Risalah fī al-Hudud*. Therefore *Mi'yār* should be a fundamental source of learning logic and methods of thinking of Muslims either at high school or university. Hence the constant and deep study on the content of *Mi'yār* is very significant and has high impact. But the dissemination of the findings of this study is the next action that should be realized."
29. Towpek, Yaman, and Sallen, Kamarudin. 2017. "Analysis on logic in *Mi'yār al-'Ilm fī Fann al-Mantiq*." *Jurnal Hadhari* no. 9:177–191.
Abstract: "*Mi'yār al-'Ilm fī Fann al-Mantiq* of al-Ghazālī is the first book on Islamic logic.
But a specific, comprehensive and exclusive study on its essence of the scientific contents and its importance in developing scientific thinking has never been done yet. Therefore, this study investigated qualitatively the background of *Mi'yār* and its contents using content analysis. In this study, the data which were collected using documentation method has been analyzed using the inductive, deductive and comparative methods. The process of analysis on logic in *Mi'yār* also been done using textual analysis method or textual content analysis method. This is because it

is textual study. This study found that the theories, methods and thoughts on logic in *Mi'yār* have several similarities and differences with the logic of Aristotle. This study also found that many reforms, improvements, purifications and reconciliations have been made in *Mi'yār* which uplifted the theories on logic in *Mi'yār* as the theories of Islamic logic. In addition, this study found that the examples of logic application in *Mi'yār* are highly relevant to the life of a Muslim. *Mi'yār* should be a basic source of learning on logic and thinking methods of Muslims either in secondary schools or universities. Hence the constant and deep study on the content of *Mi'yār* is very significant and has high impact. But the dissemination of the output of this study is the next action that should be realized."

30. ———. 2017. "The Writing Methodology of *Mi'yār al-'Ilm fī Fann al-Mantiq*." *Journal of Usuluddin* no. 45:123–154.
Abstract: "*Mi'yār al-'Ilm fī Fann al-Mantiq* of al-Ghazālī is the first book on Islamic logic. But the specific, comprehensive and exclusive study on the essence of its scientific contents and its significance in developing scientific thinking has never been done. Thus this study investigates the methodology of *Mi'yār* writing. This qualitative study uses content analysis method. The data which were collected using the documentation has been analyzed using the inductive, deductive, and comparative methods. The process of analysis of logic in *Mi'yār* be done using methods of textual analysis or textual content analysis and constant comparison. It is because of this study is a textual study. This study found that *Mi'yār* written by two objectives. Firstly; to provide an understanding on the methodologies of thinking and researching, and explain the rules of constructing syllogisms and analogies. Secondly; to review the matters which have been written in *Tahāfut*. The study also found that al-Ghazālī wrote *Mi'yār* using at least 18 methodologies of writing. Therefore *Mi'yār* should be a fundamental source of learning logic and methods of thinking of Muslims either at high school or university. Hence the constant, thorough and deep study on the content of *Mi'yār* is very significant and has high impact. But the dissemination of the findings of this study is the next action that should be realized."
31. Troupeau, Gérard. 2007. "The logic of Ibn al-Muqaffa' and the origins of Arabic grammar." In *The Early Islamic Grammatical Tradition*, edited by Baalbaki, Ramzi, 27–35. Aldeshot: Ashgate.
"These observations lead us to assert, once again,¹³ that there exists no conformity between primitive Arabic grammatical terminology and the terminology of Greek logic; and that, in particular, the division of the discourse into three parts, established by the first Arab grammarians, owes nothing to Aristotelian logic. And, in order to give an idea of the importance of the logic of Ibn al-Muqaffa' for the history of grammatical and philosophical notions, it has been reckoned appropriate to supply non-Arabists with a translation of the first six chapters of his epitome of the *Hermeneutics*." (p. 31)
(13) Cf. G. Troupeau, *L'origine de la grammaire arabe a la lumière du Kitab de Sibawayhi*, in *Journal of the Jordan Academy of Arabic*, I (1978), p. 125-38 (in Arabic).
32. Türker, Sadık. 2010. "The Probability of Truth of Propositions in the Arabic Logic: Introducing to the Belief Conception of Truth and the Arabic Formalism in Logic." *Elmi Eserler: The Institute of Philosophy, Sociology and Law of Azerbaijan National Academy of Sciences* no. 2:126–141.
Abstract; "This paper examines al-Fārābī's logical thought within its Arabico-Islamic historical background, and attempts at conceptualizing what this background contributes to his logic. After a brief exposition of al-Fārābī's main problems and goals, I shall attempt at reformulating the formal structure of Arabic linguistics (AL) within ontological and formal characteristics where the Arabic logic is built upon. Having discussing the competence of al-Fārābī in the history of the AL, I will propose further three interrelated theses about al-Fārābī's logic those are *logico-linguistic* conception, the *project of logicization*, and *nuclear logic* whereby I

- will attempt to redefine his logic. The final question that will arise is how Aristotle's logic could be built upon the AL which has a contrary nature to logic. The present paper also contributes examining our traditional research habits in the Arabic studies."
33. Vagelpohl, Uwe. 2010. "The Prior Analytics in the Syriac and Arabic tradition." *Vivarium* no. 48:134–158.
Abstract: "The reception history of Aristotle's *Prior Analytics* in the Islamic world began even before its ninth-century translation into Arabic. Three generations earlier, Arabic authors already absorbed echoes of the varied and extensive logical teaching tradition of Greek- and Syriac-speaking religious communities in the new Islamic state. Once translated into Arabic, the *Prior Analytics* inspired a rich tradition of logical studies, culminating in the creation of an independent Islamic logical tradition by Ibn Sīnā (d. 1037), Ibn Rušd (d. 1098) and others. This article traces the translation and commentary tradition of the *Prior Analytics* in Syriac and Arabic in the sixth to ninth centuries and sketches its appropriation, revision and, ultimately, transformation by Islamic philosophers between the ninth and eleventh centuries."
 34. van Ditmarsch, Hans P. 2008. "Logical Fragments in Ibn Khaldūn's *Muqaddimah*." In *The Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and their Interactions*, edited by Rahman, Shahid, Street, Tony and Tahiri, Hassan, 281–294. Dordrecht: Springer.
Abstract: "In this short contribution we briefly present life and times of Ibn Khaldūn, his magistral accomplishment in the *Muqaddimah*, and present *Muqaddimah* fragments related to logic and epistemology from the perspective of modern modal logic."
 35. Versteegh, Cornelis H. M. 1977. *Greek Elements in Arabic Linguistic Thinking*. Leiden: Brill.
Table of Contents: Preface VII–XI; I. The first contact with Greek grammar 1; II. Articulated sound and its meaning 19; III. The theory of grammatical categories 38; IV. The *usul an-nahw* and Greek empiricist medicine 90; V. The period of the two schools 107; VI. The influence of Greek logic 113; VII. The use of logic in grammar 128; VIII. The *Mu'tazila* 149; IX. The origin of speech 162; X. The Stoic component in the theory of meaning 178; Diagram of the most important Arabic grammarians 192; List of abbreviated titles 196; Arabic, Greek, Hebrew, Latin authors quoted 205; Originals of the Arabic and Greek texts quoted in English translation 209; Indexes: Personal names 230; Arabic terms 234; Greek terms 238; Latin terms 242; Hebrew and Syriac terms 243.
"The influence of pure, mostly Peripatetic, Greek logic remained preponderant in the logical works of Arabic philosophers. Many of the ideas and terms of the Aristotelian tradition are found for instance in Gazzālī's works, such as the *Kitāb al-maqṣad al-asnā fī asmā' Allāh al-husnā*, the *Kitāb al-mustasfā*, the *Miyār al-ilm*, and the *Kitāb al-ma'ārif al-aqliyya*. We may also refer to Ibn Hazm's *Kitāb at-taqrib li-hadd al-manṭiq* and to the section about logic in Ḥwarizmi's *Mafātiḥ al-'ulūm*. But the most important contribution to our knowledge of Aristotelian logic in the Arabic world comes from Ibn Sīnā's commentaries and from the works of Fārābī: notably his commentary on the *De Interpretatione*, and the section about logic in his *Iḥṣā al-ulūm*. From these writings Aristotelian logic found its way to grammar, though it never succeeded in replacing completely the earlier influence of the direct contact with Greek grammar.
It should be noted that with the introduction of Greek logic other elements besides the Peripatetic theory were brought to the Arabic world, among them Stoic elements. This applies for instance to Stoic materialism, which had a strong influence on the *Mu'tazilite* philosopher Nazzam (d. 845/231) and which is also discernible in the theories about the nature of sound. The theory of meaning and the Stoic traces found in it will be discussed below, as well as those Stoic elements which are present in Arabic grammatical theories." (pp. 126–127, notes omitted)

36. Versteegh, Kees. 2000. "Grammar and Logic in the Arabic Grammatical Tradition." In *History of the Language Sciences: An International Handbook on the Evolution of the Study of Language from the Beginnings to the Present. Vol. I*, edited by Auroux, Sylvain, Koerner, E.F.K., Niederehe, Hans-Josef and Versteegh, Kees, 300–306. Berlin: Walter de Gruyter.
 "The [Arab] grammarians were, of course, aware of the fact that there were other languages.
 The point is that they did not regard these languages as worthy of linguistic study. The first Arab grammarian who wrote a complete analysis of the language, Sibawayhi (d. 177/793?), was a Persian, but nowhere in his *Kitāb* does he make any effort to compare the Arabic and the Persian language, and there is no indication at all that he was interested in the analysis of languages other than Arabic.
 At a later period the grammarian Ibn Ginnī (d. 392/1002) mentions in his *Ḥaṣa is* (I, 243) that he asked his teacher al-Fārisī (d. 377/987) and other scholars whose mother tongue was Persian, what they thought about the Persian language: they were unanimous in upholding the superiority of the Arabic language (*lutf al-'arabiyya*).
 This general disinterest in languages other than Arabic remained an essential trait of the entire Arabic grammatical tradition. It was at least partly responsible for the fact that the relationship between speaking and thinking, between language and thought, fell outside the frame of reference of the grammarians.
 In the 9th century CE, however, the introduction of Greek logical and philosophical ideas forced them to consider the issue of the relationship between language and thought. During this period logicians, who were influenced by Greek thought, claimed that thought processes were universal, but that the linguistic expression of these processes was accidental.
 This claim forced the grammarians to deal with problems they had until then ignored." (p. 300)
37. Vural, Mehmet 2010. "Classic Logic of Al-Ghazali Methodology." *Journal of Islamic Research* no. 3:143–148.
 "In the Islamic thought, it was al-Ghazālī who for the first time tried to reconcile the logic of Aristotle with the religious sciences. He demonstrated his understanding of logic especially in his works *Maqasid al-falasifa* (*The Aims of Philosophers*), *Miyar al-ilm* (*Criterion of Knowledge*) and *Mihak al-nazar* (*Touchstone of Reasoning*) as well in *al-Qistas al-mustaqim* (*The Correct Balance*), which he wrote during his solitary life. Later on, following this period of solitary life, besides focusing on Sufi experience, he did not ignore the science of logic. The importance he stressed on logic is quite obvious in his work *al-Mustasfa min 'ilm al-usu!* (*The Clarified in Legal Theory*), so that it was al-Ghazālī, who in the Islamic thought for the first time had suggested Aristotelian logic as a method for religious sciences beyond philosophical sciences, e.g. for Kalam, Fiqh or even Sufism.(3)" (pp 143-144)
 (3) Ibn Taymiyyah, *Radd 'ala al-Mantiqiyyeen (a Refutation of the Philosopher)*, Lahore: 1976, p. 14.
38. Walbridge, John. 2000. "Logic in the Islamic Intellectual Tradition: The Recent Centuries." *Islamic Studies* no. 39:55–75.
 "In what follows I will be attempting a preliminary exploration of this tradition of logic, which I will call the "school logic". I suspect that my treatment will appear to some readers as encyclopaedic, but I hasten to assure them that there is virtually no scholarly study of this period of Islamic logic. Histories of philosophy or logic oriented towards the European tradition - Kneale and Kneale or Dumitriu, for example - have nothing to say about later Islamic logic because they are working mainly from the Latin sources, and no Arabic logical works after Averroes were translated into Latin in the Middle Ages.(3) The historians of Islamic logic, repelled by the mass of unreadable commentaries and supercommentaries, dismiss the period - the last half to two-thirds of the history of Islamic logic! - as a period of stagnation.(4)

That judgment is probably warranted in part, although no one has yet seen fit to demonstrate it, but it misses two points: first, the sociological question of why this kind of logic was taught for so long, and the intellectual question of where we should draw the boundary lines of Islamic logic." (p. 57)

(3) W. C. & M. Kneale. *The Development of Logic* (Oxford: Oxford University Press, 1962), 189, 229; Anton Dumitriu, *History of Logic* {New Delhi: Heritage Publishers, 1991), 2: 19-36.

(4) This is the view of Nicholas Rescher, *The Development of Arabic Logic* (Pittsburgh: University of Pittsburgh Press, 1964), 73-75, 80-82, whose account of Islamic logic stops with the fifteenth century; of R. Arnaldez, *The Encyclopaedia of Islam*, 2nd. ed.; s. v. "Mantiq", whose account goes up to al-Ghazali (d. 505/1111), and Shams Inati, "Logic", in Seyyed Hossein Nasr and Oliver Leaman, eds., *History of Islamic Philosophy* (Routledge History of World Philosophies I: 1; London: Routledge, 1996), 2: 802-23, whose account stops with Avicenna, 950 years ago. Rescher's work is mainly a catalogue of the major Islamic logicians through about 1500 but is nonetheless the only attempt to write a book-length history of Islamic logic. I wish I could say that it was outdated, but I do not know of any work that attempts to supercede it. Rescher also wrote or co-authored a number of other articles and monographs of various aspects of Islamic logic, especially modal logic. Most recent research on Islamic logic has been devoted either to editions, translations, or explications of particular texts, almost all earlier than the period I discuss here, or to the discussion of particular problems. In Arabic there are two works worth of notice. 'Alī Sāmi al-Nashshār, *Manāhij al-Baḥth 'inda Mufakkirī al-Islam wa Iktishāf al-Minhāl al-'Ilmī al-Islāmī* [Research methods of the thinkers of Islam and an investigation of a scientific method in the Islamic world], 2nd ed. (Cairo Dar al-Ma'arif, 1965), discusses the whole question of research methodology in the mature Islamic sciences, dealing with both logic proper and the applied logic of such disciplines of law, theology, and rhetoric. 'Alī Kāshif al-Ghitā, *Naqd al-Arā' al-Manṭiqiyyah wa Hall Mushkilātihā* [Critique of logical opinions and resolution of their difficulties] {Najaf: al-Nu'man, several printings) is a survey of the disputed points in the school logic, an essential reference for anyone studying the subject, and is a sort of complement to Muḥammad-Ridā al-Muzaffar, *al-Manṭiq* (Baghdad: al-Tafayyud, 1367 /1948, and several times reprinted in Najaf, Qom, and Beirut), which has been for some decades the standard textbook for students studying logic in the Shi'ite seminaries in Iraq and which is apparently also used in Iran.

39. ———. 2003. "A Nineteenth-Century Indo-Islamic Logic Textbook." *Islamic Studies* no. 42:687–693.

"Among the lesser treasures of the Punjab University Library in Lahore, Pakistan, is a book with the unassuming title *Majmū'ah-yi Manṭiq*, "anthology on logic", a lithograph published in Ramaḍān 1293/October 1876 at the printing house of the distinguished Hindu publisher Munshi Naval Kishore in Lucknow, then in British India. It is not a very big book - iv+ 142 pp., 6 x 9.5 inches - but its title page lists thirteen logical texts.(2) The absence of dots on the final *h* of *majmu 'ah* in the title tells us that the title is Persian, even though most of the texts are in Arabic. Such a document raises a number of questions. Who compiled it and why? What are the texts of which it is composed? How are they interrelated? Why were they selected in place of other texts? Who were the readers, and what did they use this book for? One might further ask: what is the place of the teachings of these texts in the history of the development of Islamic logic, but neither I - nor, I think, anyone else at present - knows enough about the development of Islamic logic in the later period to comment intelligently on the doctrinal significance of these texts." (p. 687, a note omitted)

(2) The book is to be found in the University Library under the call number Ar. h. II 69 .

40. ———. 2011. *God and Logic in Islam: The Caliphate of Reason*. Cambridge: Cambridge University Press.

Chapter 6: *Where Is Islamic Logic? The Triumph of Scholastic Rationalism in Islamic Education* 107; Chapter 7: *The Long Afternoon of Islamic Logic* 121; Chapter 8: *The Institutionalization of Disagreement* 142-153.

Abstract: "This book investigates the central role of reason in Islamic intellectual life.

Despite widespread characterization of Islam as a system of belief based only on revelation, John Walbridge argues that rational methods, not fundamentalism, have characterized Islamic law, philosophy, theology, and education since the medieval period. His research demonstrates that this medieval Islamic rational tradition was opposed by both modernists and fundamentalists, resulting in a general collapse of traditional Islamic intellectual life and its replacement by more modern but far shallower forms of thought.

The resources of this Islamic scholarly current, however, remain an integral part of the Islamic intellectual tradition and will prove vital to its revival. The future of Islam, Walbridge argues, will be marked by a return to rationalism."

"So perhaps *manṭiq* is not the whole of Islamic logic but rather the name of a particular tradition of Islamic logic, and the indigenous traditions of Islamic thought might supply other logics. Where, then, would we find these other logics? I think that there are four plausible major candidates:

- 1) Arabic grammar;
- 2) Arabic rhetoric;
- 3) *Uṣūl al-fiqh*, the science of the principles of the deduction of Islamic law; and
- 4) *Kalām*, Islamic dogmatic theology.

That these traditions might be linked, especially in the postclassical period, is shown by the fact that the authors of the standard texts in each of these fields usually also wrote on the others. For example, the great writer of textbooks al-Sharīf al-Jurjānī (1339–1413), who would be classed as a *faqīh*, a scholar of religious law, wrote original works, glosses, or commentaries on popular works of Qurʾān commentary, hadith, Arabic grammar and rhetoric, logic, philosophy, *Kalām* theology, Islamic law, disputation theory, and astronomy, among other subjects. Two of his elementary textbooks on logic in Persian were still in use in India in the nineteenth century. There were many others like him, and in later centuries it would be unusual for a major religious scholar not to have also written on the rational sciences." (p. 110)

41. Whittingham, Martin. 2015. "Al-Ghazālī on Syllogistic Logic as a Source of Certainty about the Qurʾān." In *900 Jahre al-Gazālī im Spiegel der islamischen Wissenschaften*, edited by Ucar, Bülent and Griffel, Frank, 127–138. Osnabrück: V&R unipress.

"This study explores a question of key concern to all reflective Muslims – and indeed to reflective believers of any faith. How can a believer be sure about the basis of their faith? Al-Ghazālī is well known for his account of doubt and certainty in his spiritual autobiography, *Al-Munqidh min al-ḍalāl*,⁽¹⁾ but this focuses on the subjective and experiential certainty which al-Ghazālī contends is available to the believer. The aim here is somewhat different, namely to explore al-Ghazālī's views on three ways in which the Qurʾān itself yields certainty.

Al-Ghazālī addresses the issue of the Qurʾān and certainty in a number of ways which draw on the use of syllogistic logic. In *Prior Analytics*, Aristotle defines the syllogism as "a discourse in which, certain things being stated, something other than what is stated follows of necessity from their being so."⁽²⁾ Rather than offer a full technical exposition of the syllogism, it is sufficient for this enquiry to note that the syllogism contains three propositions, the third of which should follow as a conclusion if the first two are true. For example, All scholars are intelligent / Professor X is a scholar / Therefore Professor X is intelligent." (p. 127)

(1) Al-Ghazālī, *Al-Munqidh min al-ḍalāl*, ed. Farid Jabre, Beirut 1959; English translation in Richard J. McCarthy, *Freedom and Fulfillment*, Boston 1980, pp. 61–114.

(2) Aristotle, *Prior Analytics*, in: *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. Jonathan Barnes, Princeton 1984, p. 40 (24b 18–20)

42. Widigdo, Mohammad Syifa Amin. 2018. "Aristotelian Dialectic, Medieval *Jadal*, and Medieval Scholastic Disputation." *The American Journal of Islamic Social Sciences* no. 35:1–24.
Abstract: "This article argues that medieval Christian and Muslim scholarship employed Greek dialectic to differing purposes. Greek dialectic aims to defeat an opponent by exposing logical contradictions; Christian scholarship claims to use the dialectic to search for the truth in a pedagogical setting; and Muslim scholarship employs it to arrive at the truth with a degree of certainty. As a result, this article further argues, Greek dialectic in Christian and Muslim contexts undergoes some modifications. In the Christian context, dialectic serves a didactical purpose, which is to find the truth that resides in the mind of the teacher. In the Islamic context, Greek dialectic is employed to find epistemological (qaṭʿī) or psychological (ghalabat al-ẓann) certainty in religious knowledge."
43. Wisnovsky, Robert. 2009. "Arabic Logicians on Perfect and Imperfect Syllogisms: A Supplement to Patzig's 'Historical Excursus.'" In *Avicenna and His Legacy: A Golden Age of Science and Philosophy*, edited by Langermann, Y. Tzvi, 257–273. Turnhout: Brepols.
"In his influential monograph *Die aristotelische Syllogistik*, Günther Patzig claimed that 'up to now' — that is, in the over two thousand years between Aristotle and Patzig — the nature of Aristotle's distinction between perfect and imperfect syllogisms 'has not been properly understood'. (1) In one powerfully argued chapter of the book, Patzig introduced Aristotle's distinction as well as the problems that arose from it; surveyed and picked apart previous explanations of the distinction — from the ancient and late antique Greek and medieval Latin commentators, as well as from nineteenth-century European historians of logic — and also proposed his own alternative explanation; and finally concluded that Aristotle's distinction, when understood along the lines that Patzig proposed, turns out in the end to be logically unjustifiable. My aim in this paper is to supplement Patzig's survey of previous interpretations of how perfect and imperfect syllogisms differed one from the other, by taking into account how a representative sample of Arabic thinkers dealt with the distinction. I shall begin, like Patzig, by summarizing what Aristotle has to say about it. I shall then turn to three confusions that arise from the distinction, and survey the reactions and attempted solutions of subsequent thinkers from the late antique Greek exegetical tradition, as well as from the Arabic philosophical tradition that was its direct heir. Finally, I shall return to Aristotle and suggest that there is a potentially crucial element in this discussion that might have informed the commentators' views and which modern scholars, including Patzig, seem to have ignored: Aristotle's discussion of *to teleion* (the perfect or complete) in *Metaphysics*, V.16." (pp. 257-258)
(1) Günther Patzig, *Die aristotelische Syllogistik* (Göttingen, 1959; repr. 1963). Here I am quoting from Jonathan Barnes's translation, *Aristotle's Theory of the Syllogism: A Logico-Philological Study of Book 'A' of the 'Prior Analytics'* (Dordrecht, 1968), p. 43. All translations are my own unless otherwise noted.
44. Young, Walter Edward. 2016. "*Mulāzama* in Action in the Early *Ādāb al-Baḥṭh*." *Oriens* no. 44:332–385.
Abstract: "By presenting and analyzing an early *ādāb al-baḥṭh* commentary's illustrative dialectical sequences, the current study: (1) reveals a set of distinct strategies employed in *mulāzama* justification; (2) sheds light on a number of additional argument types in regular use; and (3) provides a scripted impression of how a disputation governed by the *ādāb al-baḥṭh* would, in practice, have sounded. These general patterns, impressions, and particular argument identifications, together with those of future microstudies, may, it is hoped, inform the analytical foundation for both exploring the *ādāb al-baḥṭh*'s argumentative genealogy, and assessing its formative influence in "postclassical" Islamic rational disciplines."
45. ———. 2017. *The Dialectical Forge: Juridical Disputation and the Evolution of Islamic Law*. Chm (witzerland): Springer.

"The primary title of this monograph is "The Dialectical Forge," and its individual terms provide a suitable launching point for discussing the current project as a whole. As for the first, the most common Arabic terms for "dialectic" are *jadāl* and *munāẓara*, both denoting formal disputation between scholars in a given domain, with regard to a specific thesis. When one encounters the term "dialectical" in the present work, one should think foremost of procedure-guided debate and the logic inherent to this species of discourse. A dialectical confrontation occurs between two scholars, in question and answer format, with the ultimate aims of either proving a thesis, or destroying it and supplanting it with another. A proponent-responent introduces and attempts to defend a thesis; a questioner-objector seeks (destructively) to test and undermine that thesis, and (constructively) to supplant it with a counter-thesis. Through progressive rounds of question and response the questioner endeavours to gain concession to premises which invalidate the proponent's thesis, justify its dismantling, and provide the logical basis from which a counter-thesis necessarily flows.

(...)

Thus, "the dialectical forge" aims to convey the intellectually-formative dynamic of dialectical debate, and, with specific regard to the current project: debate within the Islamic juridical domain. My argument throughout this monograph is that dialectical disputation was a vital dynamic in the evolution of Islamic law—not only with respect to doctrinal bodies of substantive rulings, but to Islamic legal theories, and to a continually-evolving set of dialectical theories as well. The exigencies of dialectical debate provided key motives and forged key structures, elements, principles, and concepts for what became known as the sciences (*‘ulūm*) of derived substantive law (*fiqh*), legal theory (*uṣūl al-fiqh*), and juridical dialectic (*jadāl* or *munāẓara*), not to mention certain sub-genres of the juristic sciences—e.g., the arts of discovering *qiyās* -invalidating inter-case distinctions (*furūq*) and weaker and stronger analogues (*ashbāh wa naẓā‘ir*)." (pp. 1-2)

46. ———. 2022. "On the Logical Machinery of Post-Classical Dialectic: The *Kitāb ‘Ayn al-Nazar* of Shams al-Dīn al-Samarqandī (d. 722/1322)." *Methodos. Savoirs et textes* no. 22:1–46.

Abstract: "The post-classical (or post-Avicennan, post-Rāzian) genre of the "protocols for dialectical inquiry and disputation" (*ādāb al-baḥṭh wa-l-munāẓara*) has its more proximate origins in the famed *Risāla* of Shams al-Dīn al-Samarqandī (d. 722/1322). The greater part of his conceptions and methodology, however, consists in a streamlining and universalizing of the more strictly juristic dialectic (*jadāl / khilāf*) of his teacher Burhān al-Dīn al-Nasafī (d. 687/1288); and this in turn draws on the highly logicized dialectic of Rukn al-Dīn al-‘Amīdī (d. 615/1218) and his teacher Raḍī al-Dīn al-Nīsābūrī (d. 617/1220). At the heart of methods in this lineage, and carried forward by al-Samarqandī into the universal *ādāb al-baḥṭh*, are three truth-preserving logical relationships critical to the truth-seeking enterprise of dialectic: entailment (*talāzum / mulāzama*), mutual negation or exclusion (*tanāfīn / munāfā*), and causal concomitance (*dawarān*). The practical elaboration of these relations reveals a logic in action—a premodern dialogical logic for living disputation praxis. In fact, so critical were these to the dialectical enterprise that al-Samarqandī devoted a specialized treatise entirely to summarizing their defining features and rules, aptly naming it the *‘Ayn al-Nazar*, or "Wellspring of Rational Investigation." In this article, and drawing upon a recently published digital critical edition, I will present an analytical outline of these core logical relations as presented in the *‘Ayn al-Nazar*. Then I will address a number of points of interest in this text, grouped under six themes: the potential for cross-disciplinary advancement; notions in discursive development; significant or uniquely contributive formulations; peculiarities of content; signs of an evolving, universalist agenda; and evidence that the *‘Ayn al-Nazar* was designed as an *aide-mémoire* for the active disputant."

47. ———. 2022. "The Formal Evolution of Islamic Juridical Dialectic: A Brief Glimpse." In *New Developments in Legal Reasoning and Logic: From Ancient Law*

to *Modern Legal Systems*, edited by Rahman, Shahid, Armgardt, Matthias and Kvernenes, Hans Christian Nordtveit, 83–113. Cham (Switzerland): Springer. Abstract: "The development of Islamicate dialectical theory (*jadal* / *munāzara* / *ādāb al-baḥth*) is both pluralistic and nonlinear, even when restricted to the juridical domain. Deeper trends are nevertheless apparent; the most important may be the infusion of post-Avicennan syllogistic commonly understood to have begun in the eleventh century CE. This trend towards logical formalism found its greatest expression in a rigorously syllogistic twelfth and thirteenth century Eastern juristic dialectic which in turn informed a new, universal dialectical method: the *ādāb al-baḥth wa'l-munāzara*, or "protocols for dialectical inquiry and disputation." Equally applicable in theology, philosophy, and law, this streamlined system quickly grew into a core discipline in the Islamic sciences, generating a massive commentary tradition. This article presents three vignettes of dialectical argument in action—snapshots from various moments in variant streams of Islamic juridical dialectic—marking certain key features at each stage. Critical roles are highlighted for the dialectical objections of intra-doctrinal inconsistency (*naqqḍ*) and counterindication (*muāraḍa*), and special focus is maintained on the formative dynamic of dialectical disputation in shaping both legal theory and dialectical theory itself."

48. ———. 2025. "Four Moves to Rule Them All: Qiyās-Dialectic Metatheories and the Ascendancy of Master-Category Objections in Post-Classical Islamic Dialectics." 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, 366–426. Leiden: Brill.
"In this study I will introduce the four directly relevant categories of metatheory, illustrating them with examples predating Molla Fenārī's early Ottoman formulations. In so doing, I believe a general picture will emerge of how and why the master-category objections became the singular focus of post-classical dialectical theory. Before proceeding, however, a quick disclaimer. In short, this study should not be considered the final say in the matter. To date, I have surveyed the qiyās-oriented dialectic of only eighteen works belonging to fourteen authors.(7) There are, of course, several dozen more works which may contain material of interest, and further surveys are bound to uncover additional, hypothesis-refining details. However, I believe that the general picture emerging at this stage is sufficient to answer the objection-reduction question, and, in so doing, yield a model dynamic that sheds light on other transformative processes essential to the streamlining of juristic dialectics and subsequent birth of a universalist *ādāb al-baḥth wa'l-munāzara*." (pp.368-369)
(7) They are, in rough chronological order (works marked by an asterisk did not contain a significant amount of qiyās-dialectic metatheory): the *Taqwīm al-Adilla* of Abū Zayd ad-Dabūsī (Ḥanafī, d. 430/ 1039); the *Sharḥ al-Luma** and *al-Mulakhkhaṣ fī l-Jadal** of Abū Ishāq ash-Shīrāzī (Shāfi'ī, d. 476/1083); the *Iḥkām al-Fuṣūl fī Ahkām al-Uṣūl** and *Kitāb al-Minhāj fī Tartīb al-Ḥijāj* of Abū l-Walīd al-Bājī (Mālikī, d. 474/1081); the *Kanz al-Wuṣūl ilā Ma'rifat al-Uṣūl* of Fakhr al-Islām Abū l-Ḥasan al-Bazdawī (Ḥanafī, d. 482/1089); the *Mustaṣfā** of Abū Ḥamid al-Ghazālī (Shāfi'ī, d. 505/1111); the *Maḥṣūl** and *Ma'ālīm** of Fakhr ad-Dīn ar-Rāzī (Shāfi'ī, d. 606/1209); the *Mughnī** of Jalāl ad-Dīn al-Khabbāzī (Ḥanafī, d. 691/1292); the *Iḥkām fī Uṣūl al-Ahkām* of Sayf ad-Dīn al-Āmidī (Shāfi'ī, d. 631/1233); the *Muntahā* and *Mukhtaṣar al-Muntahā* of Jamāl ad-Dīn Ibn al-Ḥājib (Mālikī, d. 646/1249); the *Sharḥ al-Fuṣūl fī l-jadal* of Burhān ad-Dīn al-Nasafī (Ḥanafī, d. 687/1289); the *Risāla fī Ādāb al-Baḥth* of Shams ad-Dīn as-Samarqandī (independent [?], d. 722/1322); the *Sharḥ Mukhtaṣar Ibn al-Ḥājib* of 'Aḍud ad-Dīn al-Ījī (Shāfi'ī, d. 756/1355); the *Baḥr al-Muḥīṭ* of Badr ad-Dīn az-Zarkashī (Shāfi'ī, d. 794/1392); and the *Fuṣūl al-Badā'i fī Uṣūl al-Sharā'i* of Molla Fenārī (Ḥanafī, d. 834/1431)
49. Zarepour, Mohammad Saleh. 2021. "Abharī's Solution to the Liar Paradox: A Logical Analysis." *History and Philosophy of Logic* no. 42:1–16.

Abstract: "The medieval Islamic solutions to the liar paradox can be categorized into three different families. According to the solutions of the first family, the liar sentences are not well-formed truth-apt sentences. The solutions of the second family are based on a violation of the classical principles of logic (e.g. the principle of non-contradiction).

Finally, the solutions of the third family render the liar sentences as simply false without any contradiction. In the Islamic tradition, almost all the well-known solutions of the third family are inspired by the solution proposed by Aṭīr al-Dīn al-Abharī (d. 1265). Providing a logical analysis of his discussion of the liar paradox, I show that his solution is based on a conception of truth according to which every sentence signifies, usually among other things, its own truth. This makes Abharī's solution of the same spirit as certain solutions that were later developed in the Latin tradition, in particular by John Buridan (d. 1358) and Albert of Saxony (d. 1390)."

50. ———. 2024. "Dashtakī's Solution to the Liar Paradox: A Synthesis of the Earlier Solutions Proposed by Ṭūsī and Samarqandī." *History and Philosophy of Logic* no. 45:219–245.

Abstract: "Ṣadr al-Dīn al-Dashtakī (d. 1498) has proposed a solution to the liar paradox according to which the liar sentence is a self-referential sentence in which the predicate 'false' is iterated. Discussing the conditions for the truth-aptness of the sentences with nested and iterated instances of the predicates 'true' and/or 'false', Dashtakī argued that the liar sentence is not truth-apt at all. In the tradition of Arabic logic, the central elements of Dashtakī's solution—the self-referentiality of the liar sentence and the implicit iteration of the predicate 'false'—were initially highlighted in two earlier solutions proposed by Naṣīr al-Dīn al-Īsī (d. 1274) and Shams al-Dīn al-Samarqandī (d. 1322), respectively. Here I investigate all three solutions and show that Dashtakī's solution can be taken as a synthesis of the other two. None of these solutions seems to be convincing at the end of the day. Nevertheless, all of them include significant logical and philosophical insights. In particular, although Dashtakī's solution is not itself compelling, it is only a few steps away from a promising solution. The appendix to this paper includes translations of the relevant passages."

51. Zeraatpisheh, Mahmood. 2023. "Note on the Negative Approach of al-Shahīd al-Thānī Towards Logic in *al-Iqtisād wa al-Irshād*." *History and Philosophy of Logic* no. 44:247–254.

Abstract: "Aversion towards logic is a characteristic feature of the Islamic traditionalists.

There is in fact a history of opposition to logic in Islam. As any other areas of history, here also the correct picture will not be achieved unless all of the pieces are put together. In what follows, I am going to shed light on a chapter written by Zayn al-Dīn al-'Āmilī (d. 966/1558), the Twelver Shī'ī Scholar better known as al-Shahīd al-Thānī. The chapter not only shows al-Shahīd al-Thānī's negative stance towards logic, but also is important because it is a part of less studied Shī'ite traditionalists' tendencies towards logic; those who are considered as the most influential figures in Iranian seminaries from the Safavid period up until today."

52. ———. 2024. "The Development of the Concept of Predication in Arabic Philosophy." *History and Philosophy of Logic*:1–15.

Abstract: "Predication is a central theme in Arabic logic that has undergone significant semantic transformation throughout history. This article explores the evolution of predication's scope and meaning across four successive stages. Rather than pinpointing specific historical moments—given that these transitions lack clearly defined beginnings or endings—the focus is on key propositions that enrich our understanding of predication, drawing on the classifications of thinkers such as Abū Naṣr al-Fārābī (d. 950), Athīr al-Dīn al-Abharī (d. 1262-65), Mullā Ṣadrā (d. 1635), and Muhammad Ḥusayn Ṭabāṭabāī (d. 1981). The transition from the first to the second stage is characterized by the acceptance of natural propositions (*ṭabī'īya*), while subsequent stages involve essential primary (*dhātī awwalī*) and

stronger/weaker (*ḥaqīqa-raqīqa*) propositions. This progression illustrates a shift from expressing the properties of external objects to articulating the properties of concepts, ultimately culminating in the expression of identity between concepts and external entities.

The four stages can be summarized as follows: (1) First-order predication; (2) Second-order predication; (3) Second-order identity; (4) First-order identity."

53. Zonta, Mauro. 2013. "Three New Fragments of a Paraphrase of Aristotle's *Topics* ascribed to Themistius in Hebrew Quotations of al-Fārābī's 'Long Commentary' on the *Topics*, Book VIII,“." In *Ad notitiam ignoti. L'Organon dans la translatio studiorum à l'époque d'Albert le Grand*, edited by Brumberg-Chaumont, Julie, 217–224. Turnhout: Brepols.

"According to a recent study by Ahmad Hasnawi(1), the well-known Greek philosopher and commentator of Aristotelian works, Themistius (317-388), probably wrote two different treatises specifically devoted to the contents of Aristotle's *Topics* : a Paraphrase of the *Topics*, and a shorter work on *The Examination of the (Logical) Places*. The Greek text of both is missing ; however, some direct references to their contents, as well as quotations of specific passages of them, can be found in four Medieval philosophical works : *De Topicis Differentiis* by the 6th-century Latin philosopher Boethius (d. 525), *The Reflective Book* by the 12th-century Judeo-Arabic philosopher Abū l-Barakāt al-Ba'gdādī (d. 1167), and the *Middle Commentary* on Aristotle's *Topics* and *The Meanings of the Discourse On the Whole* by the 12th-century Arab-Islamic philosopher Averroes (1126-1198)." (p. 217)
(...)

"The case studied here is partially different. The three passages which seem to be ascribed to Themistius were apparently not taken from a direct reading of the Greek text in Arabic translation ; probably, they were found in al-Fārābī's lost work on book eight of Aristotle's *Topics*, which Todros [ben Meshullam ben David Todrosi] employed as one of the main sources for his anthology, as found on folios 67v-75r and 85v-93v of the London manuscript. As a matter of fact, the name of their author was apparently altered."(p. 219)

(1) A. Hasnawi, « Boèce, Averroès et Abū al-Barakāt al-Baghdādī, témoins des écrits de Thémistius sur les *Topiques* d'Aristote », in *Arabic Sciences and Philosophy*, 17, 2007, (p. 203-265), on p. 204-209 in particular.

54. ———. 2015. "Shakhṣ "person, individual" in Arabic logic. A comparative history of the term and its meanings found in other languages of culture in the Near, Middle and Far East." *Studi Magrebini* no. 12-13:549–560.