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*Khaled  
El-Rouayheb*

# THE DEVELOPMENT OF ARABIC LOGIC (1200–1800)

SCHWABE VERLAG



Medieval and Early Modern Philosophy 2

Julia Jorati / Dominik Perler / Stephan Schmid (eds.)

**Khaled El-Rouayheb**

# **The Development of Arabic Logic (1200–1800)**

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- Stanford Encyclopedia of Philosophy (<https://plato.stanford.edu/>)
- The digitized manuscripts and rare books on <https://al-mostafa.info/books/>
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- The online catalog of manuscripts in Iran ([www.aghabozorg.ir](http://www.aghabozorg.ir))
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## Note on Transliteration, Dates, and Translations

In transliterating names, I have followed the transliteration system of the *Journal of Islamic Studies* for Arabic, Persian, Urdu and Ottoman Turkish, with two exceptions: For Ottoman Turkish I use ħ (Ĥ in upper case) instead of h/H to render the letter ح, and for Urdu names I have not underlined the aspirated sounds (thus “Lakhnawī”, not “Lakhhnawī”).

I have retained the Arabic transliteration system for all scholars active before the establishment of the Ottoman, Safavid and Mughal Empires. I then use the Ottoman Turkish transliteration system for Ottoman scholars from Anatolia and Rumelia, the Persian transliteration system for Persian, Central Asian and Kurdish scholars active after 1500, the Urdu transliteration system for Indo-Muslim scholars, and the Arabic transliteration system for scholars from the Arabic-speaking Near East and North Africa. I have retained the Latinate forms “Avicenna” and “Averroes” for the scholars who are already known by these names in English.

In giving dates, I usually give both the Islamic calendar (Hijri) year and the CE year, thus: Hijri year/CE year. A Hijri year will usually begin in one CE year and continue into another. Unless the sources also give the month, I have given the Hijri year followed by the two CE years that it spans, for example 1078/1667–8. I have not given Hijri years when referring to twentieth-century scholars or European and early modern Christian Arab scholars.

All translations from the Arabic are my own unless otherwise indicated.



## I. Introduction

On the eve of modernity, at the beginning of the nineteenth century, logic was a staple part of madrasa education in all major centers of Islamic learning, from Fes and Tunis in the Maghreb to Qom and Lucknow in the East. Practically all students were expected to study at least the basics of the discipline, and the more ambitious would have studied intermediate and advanced texts as well. Works on logic were routinely written; these were often commentaries and glosses on standard madrasa handbooks but sometimes also treatises on particular topics or even new handbooks. Some of these treatises, handbooks, commentaries and glosses were among the earliest books published in the nineteenth century by the newly established printing and lithography presses of Morocco, Cairo, Istanbul, Kazan, Iran and India.

The status of logic as a core instrumental discipline, whose essentials should be mastered by any serious student, goes back to the twelfth and thirteenth centuries. As the institution of the madrasa spread from its origins in the Seljuk lands of Central Asia and Iran, logic usually found its place in the curriculum, though not without some initial resistance from traditionalist scholars. Influential figures such as al-Ghazālī (d. 505/1111) and Fakhr al-Dīn al-Rāzī (d. 606/1210) deemed logic a legitimate science that could help Islamic jurists and theologians assess arguments and avoid errors of reasoning (Marmura 1975; Shihadeh 2005). This came to be the mainstream verdict in the period from 1200 to 1800, though opposition did not disappear entirely, especially in the Arabic-Islamic (as opposed to the Turco-Persianate) world, and has been strengthened in the modern period by the rise of fundamentalist Salafism (El-Rouayheb 2004).

As logic became “naturalized” into the milieu of the madrasas, it largely shed its originally intimate connection to Aristotelian/Neo-Platonic philosophy. Many of those who taught and studied the discipline in later centuries had little or no interest in physics or metaphysics. In step with this transformation in the



use of logic, the focus of the discipline itself changed. In the course of the twelfth and thirteenth centuries, logicians ceased to engage directly with Arabic translations of the works of Aristotle, relying instead on condensed handbooks written by Muslim scholars. Such handbooks devoted little or no attention to Aristotle's *Categories* or *Posterior Analytics*. Logic came to be seen as a meta-physically uncontentious discipline that investigated, in a purely formal or topic-neutral way, the rules for the acquisition of non-evident concepts from evident concepts by means of definition and description, and for the acquisition of non-evident assents from evident assents by means of syllogism. Aristotle's categories, or his theory of demonstrative science, had little or no place in this new scheme of things. (As will be seen below, in the seventeenth and eighteenth centuries there were some efforts in both Safavid Iran and among Uniate Christian Arabs in the Levant to reverse this development and reforge the link between logic and Aristotelian philosophy.) Aristotle's *Topics* and *Rhetoric*, which the early Arab Aristotelians had considered part of the logical *Organon* (Black 1990), also came to be seen as largely extrinsic to logic. Dialectics and rhetoric were cultivated in the madrasas as separate disciplines called *ādāb al-baḥṭh* (the rules of debate) and *ma'ānī wa bayān* (semantics and rhetoric) respectively.

As its ties to Neo-Platonized Aristotelian physics and metaphysics were weakened or sundered, logic forged new links with other disciplines, especially law, theology, grammar and rhetoric. Later handbooks on jurisprudence (*uṣūl al-fiqh*) and theology (*kalām*) were suffused with technical terms and argument forms taken over from logic. Some of these handbooks include opening chapters on logic, for example *Mukhtaṣar al-Muntahā* (The Epitome of The Utmost), an influential handbook on jurisprudence by the Egyptian scholar Ibn al-Ḥājjib (d. 646/1249), and *Ṭawālī 'al-anwār* (The Rising of Lights), a handbook on philosophical theology by the Persian scholar and judge al-Bayḍāwī (d. 719/1317) (Ibn al-Ḥājjib 2006; Bayḍāwī 1991). In the influential works of the Cairo-based grammarian Ibn Hishām (d. 761/1360), logical terminology is adduced when discussing the definitions of key concepts in Arabic syntax, the assumption clearly being that readers were familiar with basic logic (Ibn Hishām 2007). The same assumption is evident in later Arabic works on rhetoric, such as the immensely influential handbook *Talkhīṣ al-Miftāḥ* (The Summary of the Key) by al-Khaṭīb al-Qazwīnī (d. 739/1338) and its many later commentaries (Qazwīnī 2004). Whatever opposition there had been in early Islamic centuries

between Arabic grammar and the Greek-inspired discipline of logic was no longer in evidence after the twelfth century.

The plethora of extant Arabic logical handbooks, commentaries and glosses attest to the widespread study of logic during what historians of Europe would call the “late medieval” and “early modern” periods. In Turkey alone, more than four thousand extant manuscripts on logic copied between 1300 and 1800 are listed on the website of the Turkish Cultural Ministry ([www.yazmalar.gov.tr](http://www.yazmalar.gov.tr)) as being extant in various Turkish libraries. Despite this wealth of extant material, the study of the history of logic in Islamic civilization is still in its early stages. Ibrahim Madkour’s *L’Organon d’Aristote dans le monde arabe* (1934, 2<sup>nd</sup> edition 1969) was the first major study (Madkour 1934, 1969). It was marred, however, by the – largely armchair – assumption that the tradition declined after Avicenna (d. 428/1037), and it accordingly devoted a mere eight (dismissive) pages to developments after the eleventh century. The work of Nicholas Rescher in the 1960s and early 1970s offered a partial corrective. Rescher pushed his investigations into the thirteenth century and managed to reconstruct a sophisticated system of temporal and modal logic in one influential handbook from that century, *al-Risāla al-Shamsiyya* (The Epistle for Shams al-Dīn) by Najm al-Dīn al-Kātibī (d. 675/1276) (Rescher 1974). He also published a bio-bibliographic survey, entitled *The Development of Arabic Logic* (1964), covering the period from the eighth to the sixteenth century (Rescher 1964). These works provided an important stimulus to the study of Arabic logic after Avicenna. As is to be expected, some of Rescher’s assumptions and assertions have been modified or abandoned by later scholarship. He assumed, for example, that the Arabic tradition of logic declined steeply after the thirteenth century and had descended by the sixteenth century into sheer “commentary-mongering”. This view, largely based on the presumption that commentaries and glosses are of necessity pedantic and unoriginal, is no longer accepted among scholars in the field. But even those who now correct or revise Rescher’s claims are themselves indebted to his pioneering efforts.

Rudolf Mach, who overlapped with Nicholas Rescher at Princeton University in the 1950s, likewise played a role in the modern rediscovery of later Arabic logic. Mach, who for many years was curator of Islamic manuscripts at Princeton University Library, was partly responsible for collecting a large number of Arabic manuscripts on logic and dialectics, especially from later centuries. He painstakingly described many of these in his monumental *Catalogue of Arabic Manu-*

*scripts (Yahuda Section) in the Garrett Collection* (1977) (Mach 1977). He was working on a catalog of the New Series of Arabic manuscripts at Princeton when he passed away in 1981, his work being continued by Eric Ormsby and published in 1987 as *Handlist of Arabic Manuscripts (New Series) in the Princeton University Library* (Mach & Ormsby 1987). Both catalogs are important sources for the history of later Arabic logic, along with other catalogs published since Rescher's *The Development of Arabic Logic*, for example of the rich collections of manuscripts on logic in the Topkapi Palace Library in Istanbul, the Khuda Bakhsh Public Library in Bankipore, the Raza Library in Rampur, and the Royal Library in Rabat (Karatay 1966, Khuda Bakhsh 1963–, 'Arshī 1971, Khaṭṭāb 1985). One of Mach's students at Princeton, Larry Miller, completed in 1984 a groundbreaking and widely cited PhD dissertation on the development of dialectics in the Islamic world (Miller 1984).

Rescher's dismissal of the period after the thirteenth century held sway among Western specialists until the 1990s (see, for example, Maroth 1989, 216ff; Arnaldez [1991] EI2; and Inati 1996). Since then, however, it has increasingly been seen as unsatisfactory. In a number of articles from the first decade of the 2000s, John Walbridge suggested that even if Rescher's sweeping negative assessment were accurate, there would still be historical and cultural questions to be addressed about the role of logic in later Islamic scholastic culture (Walbridge 2000, 2002, 2003). In the same decade, Tony Street published the first of a number of seminal articles on various aspects of the history of Arabic logic (Street 2000, 2002, 2004, 2005a, 2005b, 2008). Street offered a carefully argued and documented corrective to Rescher's sometimes speculative remarks about Arabic logic in the eleventh, twelfth and thirteenth centuries, and as a result we now have a much better sense of developments in this period, especially in modal logic. Street also dissented from the view that the decline of the later Arabic tradition could simply be inferred from the prevalence of commentaries and glosses, without actually bothering to read later works. At the same time, Rob Wisnovsky forcefully pressed for a more general reevaluation of the later Islamic tradition of philosophy and philosophical theology, and also called for a more nuanced assessment of the literary formats of commentary and gloss (Wisnovsky 2004, 2013, 2014). A number of students, advisees or associates of Street and Wisnovsky have gone on to produce monographs, articles, editions or translations relevant to the history of the later Arabic logical tradition (see the works of Ahmed, El-Rouayheb, Strobino and Young cited in the bibliography).

In the Islamic world, there has in recent years been a burgeoning interest in editing premodern works on philosophy and logic. Though this interest has lately taken off in Turkey and the Arab lands, it is Iranian scholars who have stood for the greater part of this editorial activity so far. In Iran, the tradition of Islamic philosophy and logic has continued uninterrupted until the present, and local scholars were too well informed to be taken in by the prejudice that this tradition ended in the twelfth or thirteenth centuries. Specifically in the field of logic, noticeable recent contributions include: Āḥād Farāmarz Qaramalekī's editions of the logic section of the philosophical summa entitled *al-Mulakhkhaṣ* (The Summary) by Fakhr al-Dīn al-Rāzī (d. 606/1210), of the handbook of logic entitled *al-Tanqīḥ* (The Scrutiny) by Mullā Ṣadrā (d. 1045/1635), of a work on logic entitled *Naqḍ al-uṣūl* (The Criticism of Principles) by Muḥammad Yūsuf Tihrānī (fl. 1104/1692), and of a number of treatises from the fifteenth, sixteenth and seventeenth centuries on the liar paradox; Mahdī Sharī'atī's richly annotated edition of the works on "conception and assent" (*taṣawwur wa-taṣdīq*) by Quṭb al-Dīn al-Rāzī (d. 766/1365), Mullā Ṣadrā (d. 1045/1635) and Mīr Zāhid Harawī (d. 1101/1689–90); Ḥāmid Nājī Iṣfahānī's editions of the summa of philosophy entitled *al-Kāshif* (The Uncoverer) by Ibn Kammūna (d. 684/1284) and of *al-Ufuq al-mubīn* (The Clear Horizon) by Mīr Dāmād (d. 1041/1631); and Mahdī 'Aẓīmī's editions of some of the logical works of Athīr al-Dīn al-Abharī (d. 663/1265).

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.

## IV. 1350–1600: The Eastern Islamic Tradition

### (i) Introduction (El-Rouayheb 2016; El-Rouayheb 2017)

In the course of the fourteenth century, the Arabic tradition of logic underwent two important transformations. First, the tradition of writing independent summaries waned noticeably compared to the preceding century, giving way to the predominance of the literary forms of condensed handbook (*matn*), commentary (*sharḥ*) and gloss (*ḥāshiya*), as well as treatises (*risāla*) on particular topics. The rare summaries of later centuries were mostly written by scholars such as Ibn Turka al-Iṣfahānī (d. 835/1432), Ghiyāth al-Dīn Dashtakī (d. 949/1542) and Muḥammad Yūsuf Ṭīhrānī (fl. 1104/1692) who wished to return to the logic of “the ancients”, therefore writing works that harked back, in terms of emphasis or organization, to the Peripatetic *Organon* or Avicenna’s *Shifā’*.

In the twentieth century, the literary forms of commentary and gloss came to be denigrated by most historians, Muslim as well as Western, as inherently pedantic and unoriginal. The prevalence of these literary forms was seen in studies such as Ibrahim Madkour’s *L’Organon d’Aristote dans le monde arabe* (1934, 2<sup>nd</sup> edition 1969) and Nicholas Rescher’s *The Development of Arabic Logic* (1964) as evidence of the degeneration of the Arabic logical tradition into sheer “comment-mongering”. This is clearly too sweeping. The Arabic logical tradition had from the beginning been linked to commenting on the books of the *Organon*. What was true of someone like Fārābī in the early tenth century remained true of Arabic logicians after the thirteenth century: commentators and glossators were expected to be charitable to the work they were commenting on, but often felt free to critically discuss or expand on received ideas and to disagree with the author of the base text or with other commentators. A number of examples of this will be given below, in the discussion of some of the major logicians from the period.

Having said this, the prevalence of the literary forms of commentary and gloss after the thirteenth century indicates that doing logic again came to be associated with the respectful (though not necessarily uncritical) exegesis of logical texts, after an interlude from the eleventh to the thirteenth century in which the connection between logic and textual exegesis had been weakened due, at least in part, to the self-confidence and iconoclasm of Avicenna, Fakhr al-Dīn al-Rāzī and Khūnajī.

Symptomatic of the more text-oriented approach of later centuries was the tendency to comment on and gloss the preambles of logical handbooks. It is striking that thirteenth-century commentators such as Ibn al-Badī' al-Bandahī (d. 657/1258) in his commentary on Khūnajī's *Mūjaz*, Ibn Wāṣil (d. 697/1298) in his commentary on Khūnajī's *Jumal*, and Najm al-Dīn al-Kātibī (d. 675/1276) in his commentaries on Rāzī's *Mulakhkhaṣ* and Khūnajī's *Kashf al-asrār*, did not discuss the preambles of the base text, mainly confining their discussions to strictly logical issues. This is the case even as late as the commentaries of Ibn Muṭahhar al-Ḥillī (d. 726/1325) on Kātibī's *Shamsiyya* and Ṭūsī's *Tajrīd*, written toward the end of the thirteenth century (Ḥillī 1412/1991; Ḥillī 1423/2002–3). Fourteenth-century commentators, by contrast, discussed the wording of the preamble and introduction on a par with other passages of the base text. This is true, for example, of the commentary of Shams al-Dīn al-Iṣfahānī (d. 749/1349) on Urmawī's *Maṭāli'*, the commentaries of Quṭb al-Dīn al-Rāzī (d. 766/1365) on Kātibī's *Shamsiyya* and Urmawī's *Maṭāli'*, and the commentary of Sa'd al-Dīn al-Taftāzānī (d. 792/1390) on Kātibī's *Shamsiyya*. Later glossators accentuate this trend, many of them discussing at great length semantic, rhetorical and theological issues raised by the wording of the preamble of the commentaries they were glossing, as well as the commentators' discussion of the preambles of the base texts. An example of this is the widely studied gloss of al-Sayyid al-Sharīf al-Jurjānī (d. 816/1413) on the commentary of Quṭb al-Dīn al-Rāzī (d. 766/1365) on Urmawī's handbook *Maṭāli' al-anwār*. Around one-tenth of Jurjānī's gloss is devoted to Quṭb al-Dīn's own preamble and the commentary on Urmawī's preamble (Jurjānī 1861, 2–14). These early parts of Jurjānī's gloss were in turn glossed intensively by a host of later scholars (Mach 1977, nrs. 3225–3231; Mach & Ormsby 1987, nrs. 696–701), sometimes leading to lengthy works (as long as some of the thirteenth-century summās of logic) devoted almost entirely to semantic, rhetorical, theological and metaphysical issues raised by the first few pages of Quṭb al-Dīn's commentary.

Though this practice might seem perplexing and pedantic to modern readers, it should be kept in mind that most commentators and glossators did eventually get to the strictly logical passages of the base text and often discussed these with subtlety. Furthermore, even the earlier treatment of preambles sometimes elicited discussions of relevant logical points. For example, the issue of relational syllogisms was discussed by a number of sixteenth-century glossators of a fifteenth-century commentary on a fourteenth-century handbook, and they did so in their discussion of the preamble in connection with the commentator's statement that to laud (*ḥamd*) God is to attribute munificence to Him, and in particular voluntary munificence, "for it [munificence] is an attribute of an action, and this is by volition." Some glossators regimented the argument into the following relational syllogism, arguing that the conclusion follows formally from the premises without the need for regimenting it into a standard syllogism with three terms (El-Rouayheb 2010, 158–163):

This munificence is an attribute of action

Action is voluntary

This munificence is an attribute of the voluntary

A second major development in the fourteenth century was a shift of emphasis, especially marked in the Eastern Islamic world. Thirteenth-century logicians such as Khūnājī, Kātibī, Urmawī and Ibn Wāṣil were keenly interested in the conversion and contraposition of modality propositions, the immediate implications of conditionals and disjunctions, as well as the modal and hypothetical syllogisms. In Khūnājī's *Kashf al-asrār*, for example, approximately 70% of the whole work is devoted to these topics (Khūnājī 2010). By the second half of the fourteenth century, this interest clearly began receding among Eastern Islamic logicians. Instead, the most intensely discussed parts of the thirteenth-century handbooks came to be the earlier parts dealing with issues such as the division of knowledge into conception and assent, the subject matter of logic, the problem of circularity or regress if there are no evident conceptions and assents, types of conventional reference, and the five universals (genus, species, differentia, proprium and general accident). There was still some interest in propositions, especially in the question of the parts of the propositions, for example whether they are three (subject, predicate, copula) or four (subject, predicate, copula and judgment) and in the liar paradox. But there is little evidence of strong interest



in issues such as the conversion and contraposition of modality propositions, the immediate implications of hypotheticals, and the modal and hypothetical syllogisms.

This shift in focus becomes clear from the commentary traditions on Kātibī's *Shamsiyya* and Urmawī's *Maṭālī*. For example, approximately three-quarters of the widely studied gloss by al-Sayyid al-Sharīf al-Jurjānī (d. 816/1413) on Quṭb al-Dīn al-Rāzī al-Taḥṭānī's commentary on the *Shamsiyya* discusses passages in the commentary dealing with preliminary matters and conceptions, and less than 10% is devoted to the sections on the immediate implications of propositions and the syllogism (Jurjānī 1318/1900, pp. 146–159). Jurjānī's gloss in turn became the subject of numerous super-glosses by fifteenth-century Persian scholars that discussed points raised in Jurjānī's glosses (Mach 1977, nr. 3198–3202), thus sharing and reinforcing the emphasis on the earlier parts of Quṭb al-Dīn's commentary.

Jurjānī's abovementioned gloss on Quṭb al-Dīn's commentary on the *Maṭālī* exhibits the same trend even more markedly. It only covers the early sections dealing with rhetorical and semantic aspects of the preamble of Quṭb al-Dīn's commentary, preliminary matters (the nature of knowledge and its division into conception and assent; the subject matter of logic; conventional reference), the five universals, and definitions and descriptions, ignoring entirely the later sections dealing with the acquisition of assents, i.e., propositions and syllogisms (which account for more than two-thirds of Quṭb al-Dīn's commentary). Again, Jurjānī's gloss elicited numerous super-glosses in the course of the fifteenth century by Persian scholars (Mach 1977, nrs. 3225–3231; Mach & Ormsby 1987, nrs. 696–701). By contrast, the later parts of Quṭb al-Dīn's commentary dealing with conversion, contraposition, the immediate implications of hypotheticals, and the syllogism appear not to have elicited a single gloss after the fourteenth century.

A slightly later handbook of logic that came to be widely studied in later centuries is *Tahdhīb al-manṭiq* by Sa'd al-Dīn al-Taftāzānī (d. 792/1390). An esteemed commentary on this handbook by Jalāl al-Dīn al-Dawānī (d. 908/1502) illustrates the same trend. The commentary only covers the part of the handbook that dealt with preliminary matters, the five universals, the acquisition of concepts, and propositions; it does not cover the later parts of Taftāzānī's handbook dealing with conversion, contraposition and syllogism. The incomplete commentary elicited a large number of glosses and super-glosses

in later centuries throughout the Turco-Persianate world (Mach 1977, nrs. 3237–3246).

Interest in, for example, modal conversions and syllogisms may not have ceased entirely in later centuries in Eastern Islamic lands. Nevertheless, the overall shift in emphasis away from formal-technical discussions of conversion, contraposition, the immediate implications of hypotheticals, and the modal and hypothetical syllogism is unmistakable. An obvious question is why this shift occurred. It is difficult to answer such questions with confidence, though it seems likely that it was connected to two broader intellectual developments. One was the spectacular rise of interest in the discipline of semantics and rhetoric (*‘ilm al-ma‘ānī wa l-bayān*). Especially the relevant sections of *Miftāḥ al-‘ulūm* by Abū Ya‘qūb al-Sakkākī (d. 626/1229) and its sometimes critical epitome (*Talkhīṣ al-Miftāḥ*) by al-Khaṭīb al-Qazwīnī (d. 739/1338) came to be widely studied and elicited a large number of commentaries, glosses and super-glosses in the course of the fourteenth and fifteenth centuries (Smyth 1992; Mach 1977, nrs. 3868–3914). A conspicuous number of Eastern logicians after the mid-fourteenth century were also eminent contributors to this burgeoning literature. It is highly unlikely that this was unrelated to the shifting emphasis in logic works toward, among other things, linguistic and semantic issues.

Another relevant intellectual development that coincided with the shifting emphasis of Eastern logicians in the fourteenth and fifteenth centuries was the noticeable philosophical turn in Islamic rational theology (*kalām*). The process can be seen in earnest in the writings of Fakhr al-Dīn al-Rāzī (d. 606/1210) and Sayf al-Dīn al-Āmidī (d. 631/1233), and gained strength in the thirteenth and fourteenth centuries. In widely studied theological works such as *Tajrīd al-‘aqā‘id* by Naṣīr al-Dīn al-Ṭūsī (d. 672/1274), *Ṭawālī‘ al-anwār* by Nāṣir al-Dīn al-Bayḍāwī (d. 719/1317) and *al-Mawāqif* by ‘Aḍud al-Dīn al-Ījī (d. 756/1355), discussions of the metaphysics and physics of the Aristotelian/Neo-Platonic philosophers take up almost two-thirds of the total. It is only approximately the last third of these works that is devoted to traditional issues discussed in *kalām*, such as the proofs for the existence of God, God’s attributes, the creation of human acts, and the nature of the Quran. Again, it is unlikely that this was unrelated to the shifting emphasis of logicians. There is considerable overlap between the issues discussed in the early philosophical sections of the new *kalām* handbooks and those discussed in the early sections of logic handbooks, for example: the subject matter of a science; the definition of knowledge, its division

into conception and assent, and the division of both into evident and acquired; the question of the extra-mental existence of universals; and the nature of predication (*ḥaml*) (See, for example, Jurjānī 1286/1869, 12–14, 16–21, 21–28, 114, 121–124, 128–131). Again, there is also a conspicuous overlap between a list of eminent Eastern Islamic logicians from the fourteenth to the sixteenth century and a list of eminent Eastern Islamic philosophical theologians in the same period.

In support of this explanation, it may be pointed out that the shift in emphasis away from modal and hypothetical logic was much less marked in North Africa where the interest in semantics-rhetoric and philosophical theology was much less strong than in the Eastern Islamic lands, at least until the seventeenth century. North African theologians such as al-Sanūsī (d. 895/1490) eschewed lengthy philosophical preliminaries and still retained a focus on the traditional theological topics covered in, for example, the works of Juwaynī (d. 478/1085). The North African tradition of logic in this period exhibits a number of distinctive features and will be discussed in a separate section below.

In the remainder of this chapter, a number of major Eastern Islamic logicians from 1350 to 1600 will be discussed in greater detail.

## (ii) Sa'd al-Dīn al-Taftāzānī (Madelung EI2)

Taftāzānī was born in a village in Khorasan in 722/1322. Reports that he studied with the illustrious 'Aḍud al-Dīn al-Ījī (d. 756/1355) and Quṭb al-Dīn al-Rāzī (d. 766/1365) are late and not supported by Taftāzānī's references to these scholars in his works, which are frequently critical and do not indicate a personal relationship. A report that he studied with one of Ījī's students, a certain Ḍiyā' al-Dīn al-Qirimī (d. 781/1379), seems more worthy of acceptance. Taftāzānī was active in Herat in the late 740s/1340s, when he composed the esteemed Long Commentary (*al-Muṭawwal*) on *Talkhīṣ al-Miftāḥ*, the previously mentioned handbook on semantics and rhetoric. He later travelled to Central Asia, obtaining the patronage of Muḥammad Jānī Beg of the Golden Horde (r. 742/1342–758/1357), Ḥusayn Šūfī in Khwārezm (r. 762/1361–773/1372), and Tamerlane (r. 771/1370–807/1405). He died in Tamerlane's capital Samarqand in 792/1390.

Taftāzānī's works were enormously influential until the modern period. In the twentieth century, his reputation suffered from the rising prejudices against

both post-Mongol intellectual life and the literary formats of commentary and gloss. It is now sometimes assumed that he was a “sterile commentator” (Rescher 1964, 218), but such an assessment is grossly inaccurate. Though not an iconoclastic thinker, Taftāzānī would have thought of himself as a “verifier” (*muḥaqqiq*) who not only explicated the views of his predecessors but also critically evaluated them. His logical works bear out this self-conception. For example, in his commentary on Kātibī's *Shamsiyya* (Taftāzānī 1317/1899) he defended Kātibī's view that the subject matter of logic is “known concepts and assents” from the criticisms of Tūsī (p. 8), and defended nominalism concerning universals against the more standard Aristotelian view of Kātibī (p. 21). He was also surprisingly well read, citing for example Fārābī's *Kitāb al-ḥurūf* (pp. 30–31) and the Arabic translation of Porphyry's *Eisagōgē* (p. 3, l. 21). He also penned an influential though aporetic discussion of the liar paradox (Alwishah & Sanson 2016). Most strikingly perhaps, his handbook of logic *Tahdhīb al-manṭiq* contains a passage that was considered by commentators, with good reason, to have been original. It attempts to give conditions of productivity across the various figures and moods of the syllogism, invoking the concept of *'umūm al-mawḍū'īyya*, roughly translatable as “subject generality”: this is true of a term in a premise if it is actually or by implication the subject of a universal proposition. This is akin to, even if not identical to, medieval Latin notions of “distribution”. The passage, which came to be known in later centuries as *ḍābi-tat al-Tahdhīb*, runs as follows:

The general rule for the four [syllogisms] is that there must be: either a subject generality of the middle term and that it is actually and affirmatively connected to the minor or predicated of the major term, or a subject generality of the major term together with a difference in quality [i.e., one premise is affirmative and the other negative] and an incompatibility between the relation of the description of the middle term to the description of the major term and its relation to the substance of the minor (Taftāzānī 1887, p. 7, ll. 1–5).

Taftāzānī's logical works are:

- 1) A commentary on Kātibī's *Shamsiyya* (Epistle for Shams al-Dīn). This was lithographed in Lucknow in 1317/1899 in 78 pages and in Istanbul in 1312/1894–95 in 192 pages. A more recent edition, based on a single manuscript but collated with the Indian lithograph, was prepared by

Jādullāh Bassām Ṣāliḥ (Jordan: Dār al-Nūr, 2011). In the introduction to the work, Taftāzānī stated that he had been asked to write a commentary that reviews and, where necessary, corrects or supplements Quṭb al-Dīn al-Rāzī's commentary on the same work.

- 2) A gloss on the commentary of 'Aḍud al-Dīn al-Ījī on *Mukhtaṣar al-Muntahā* (The Epitome of the Culmination), a handbook on jurisprudence by Ibn al-Ḥājjib (d. 646/1249). Both Ījī's commentary and Taftāzānī's gloss cover – inter alia – the first part of the work that includes a general introduction as well as the outlines of logic. This section occupies the first 115 pages of the first volume of the Cairo edition of 1316/1898–1317/1900.
- 3) A commentary on Abharī's *Īsāghūjī* has erroneously been attributed to Taftāzānī in Carl Brockelmann's *Geschichte der arabischen Literatur*. The source of the error appears to be an Indian lithograph from 1288/1871 (Delhi: Maṭba' -i Muḥammadī) of the gloss of Ḳūl Aḥmed on the Ottoman scholar Fenārī's commentary on *Īsāghūjī*. In this lithograph, the glossator's mention of *al-Fawā'id al-Fanāriyya* in the introduction was corrupted to *al-Fawā'id al-Taftāzāniyya*. (Ḳūl Aḥmed's gloss was printed on a number of occasions in Istanbul in the nineteenth century, along with Fenārī's commentary, so the correct reading can easily be verified.)
- 4) *Tahdhīb al-manṭiq* (The Emendation of Logic), a condensed handbook, around half as long as the *Shamsiyya* but managing to cover almost as much. This was originally the first part of a work covering both logic and rational theology, entitled *Ghāyat tahdhīb al-kalām fī tahrīr al-manṭiq wa-l-kalām* (The Ultimate Emendation of Discourse in Redacting Logic and Theology). The later commentary tradition, however, tended to treat the two parts as separate handbooks. The part on logic, known simply as *Tahdhīb al-manṭiq*, was widely studied in later centuries, and as such elicited numerous commentaries and glosses. Particularly influential were the following commentaries by:
  - a. Jalāl al-Dīn al-Dawānī (d. 908/1502), which was widely studied in Ottoman Turkey and Mughal India (Dawānī 1887). As mentioned above, it is incomplete and only covers the parts up to the simple modality propositions;

- b. 'Ubaydullāh Khabīṣī, dedicated to the Uzbek ruler 'Abd al-Laṭīf Khān (r. 947/1540–959/1552). This became a standard commentary at the Azhar College in Cairo. Interestingly, it left out the aforementioned passage on the *ḍābīta* (Khabīṣī 1965; 'Aṭṭār 1318/1900–01; 'Aṭṭār 1936);
- c. Mullā 'Abdullāh Yazdī (d. 981/1573), which was widely studied in Safavid and Qajar Iran (Yazdī 1314/1896; Yazdī 1988).

The following is an overview of the contents of the handbook:

- i. Introduction. On knowledge and its division into conception and assent. The need for and subject matter of logic
- ii. Linguistic preliminaries. Types of reference. Distinction between singular and complex utterances. Univocal, modular and homonymous expressions
- iii. Particular and universal
- iv. The five universals
- v. Definition and description
- vi. The proposition. Its definition and parts. Singular, quantified and unquantified propositions. The *ḥaqīqī* and *khārijī* proposition
- vii. Modality propositions
- viii. Hypothetical propositions: Conditionals and disjunctions
- ix. Contradiction
- x. Conversion
- xi. Contraposition
- xii. Syllogism. The four figures
- xiii. Combinatorial-hypothetical syllogisms
- xiv. The reiterative-hypothetical syllogism
- xv. Induction and analogy
- xvi. The five arts: demonstration, dialectics, rhetoric, poetics, sophism
- xvii. Conclusion. On the subject matter, principles and issues of science. The “eight headings” of a science: aim, benefit, title, division, founder, discipline, manner of instruction, and rank

Compared to the *Shamsiyya*, the *Tahdhīb* does not give the immediate implications of hypothetical propositions. When presenting the four figures

of the syllogism it gives the conditions of productivity for the modal syllogisms of the first three figures, but not the conclusions of various productive modal syllogisms. For the fourth figure, it merely gives the conditions of productivity for the non-modal syllogisms. On the other hand, both the aforementioned paragraph on the “general conditions” (*dābiṭa*) for productivity across the figures and the concluding discussion of the “eight headings” are not to be found in the *Shamsiyya*.

**(iii) al-Sayyid al-Sharīf al-Jurjānī (Sakhāwī 1935–7, V, 328–330; Pourjavady 2011, 1–4; Van Ess, “Jorjānī, Zayn al-Dīn”, *Enc. Iranica*; Van Ess 2013)**

‘Alī b. Muḥammad al-Jurjānī was born in 740/1339–40 in a village near Gorgan, southeast of the Caspian Sea. His family claimed descent from the Prophet, and hence he came to be widely known as “al-Sayyid al-Sharīf” (“Mīr Sharīf” in the Persianate world). He pursued his education in Herat, where he met an ageing Quṭb al-Dīn al-Rāzī, and later went to Anatolia and Cairo, in the latter city reportedly studying with a certain “Mubārakshāh”, an elusive figure who was apparently a student of Quṭb al-Dīn al-Rāzī and ‘Aḍud al-Dīn al-Ījī and who is mentioned in biographical entries on a number of Anatolian scholars from this period who studied in Cairo (Ṭāṣköprüzāde 2010, 49, 51, 138–9). He may be identical to Shams al-Dīn Muḥammad b. Mubārakshāh al-Bukhārī who wrote a commentary on Kātibī’s handbook of philosophy *Hikmat al-‘ayn* that Jurjānī would later gloss. Alternatively, he may be identical to the Mubārakshāh who wrote a commentary on a treatise on music by Ṣafī al-Dīn al-Urmawī (d. 693/1294), completed in 777/1375 and dedicated to Shāh Shujā‘ (r. 759/1358–786/1384), the very same Muẓaffarid ruler of Persia who just a couple of years later granted Jurjānī a teaching post in Shiraz (Van Ess 2013, 29). (If this Mubārakshāh left Cairo and returned to Persia then this might help explain why he eluded the numerous Egyptian biographical dictionaries from the fourteenth and fifteenth centuries.)

Jurjānī taught in Shiraz from around 779/1377, helping to consolidate that town as a major center for the study of the rational sciences in the fourteenth and fifteenth centuries. After the conquest of the town by Tamerlane in 789/1387, he was taken to the Timurid court in Samarqand, and reportedly upstaged

the ageing Taftāzānī in a debate in front of the ruler. He returned to Shiraz after Tamerlane's death, and died there in 816/1413.

Jurjānī's works clearly exhibit the changing emphasis of logicians away from the formal technicalities of modal and hypothetical logic toward in-depth discussion of philosophical and semantic issues raised in the earlier parts of standard handbooks on logic. On the level of literary form, Jurjānī's works are also indicative of the development of Arabic logic in the fourteenth and fifteenth centuries. Apart from a few short treatises, two introductory manuals in Persian, and possibly a short commentary on Abhari's introductory *Īsāghūjī*, his works on logic took the form of glosses on commentaries by earlier scholars. None of this should be taken to mean that he was not a subtle contributor to the logical tradition. The extent to which his glosses were glossed in turn by later scholars suggests that he was, though a detailed study of his writings has yet to be made.

Jurjānī's works on logic are:

- 1) A gloss on Quṭb al-Dīn al-Rāzī's commentary on the *Shamsiyya*. These glosses were widely esteemed in later centuries and elicited numerous super-glosses. They have often been printed or lithographed along with the commentary, for example Tehran 1300/1883, Cairo 1311/1894 and Cairo 1323/1905. It has also been printed separately, for example in Istanbul 1318/1900 (160 pp., 23 lines per page). Approximately three-quarters of these glosses (pp. 2–119) are devoted to the section on "conceptions" (*taṣawwurāt*), dealing with preliminary matters, the five universals and definition, and approximately a fourth (pp. 120–160) to "assents" (*taṣdīqāt*), i.e. propositions and syllogisms. By comparison, in a comparable Istanbul printing of Quṭb al-Dīn's commentary (1325/1907, 178 pp., 27 lines per page), around a third (pp. 2–58) is devoted to "conceptions" and two-thirds (pp. 59–178) to "assents". Jurjānī's glosses were often known as "the minor gloss" (*al-ḥāshiya al-ṣuḡhrā*), to distinguish them from his longer – and hence "major" (*kubrā*) – gloss on Quṭb al-Dīn al-Rāzī's commentary on Urmawī's *Maṭāli' al-anwār*.
- 2) A gloss on Quṭb al-Dīn al-Rāzī's commentary on Urmawī's *Maṭāli' al-anwār*. Again, these glosses were widely studied and glossed in later centuries, especially in the Persianate world. It was printed as an appen-



dix (of 150 pp., 38 lines per page) to the commentary in the Istanbul edition of 1277/1860–1. As mentioned above, the gloss only covered the early parts of the commentary dealing with the preamble, introduction, and conceptions (corresponding to the first 74 pages out of the total 251 pages of the mentioned printing of Quṭb al-Dīn's commentary).

- 3) A gloss on 'Aḍud al-Dīn al-Ījī's commentary on Ibn al-Ḥājjib's *Mukhtaṣar al-Muntahā* on jurisprudence, covering inter alia the early section on logic. This was printed along with Ījī's commentary and Taftāzānī's gloss in Cairo in a two volume edition in 1898–1900. Jurjānī's gloss on the introduction and first chapter on logic (vol. I, pp. 1–115) elicited numerous super-glosses in later centuries, especially in the Ottoman Empire (Mach 1977, nrs. 872–877).
- 4) A commentary on Khūnājī's *Jumal* was sometimes misattributed to Jurjānī in later times. The two extant manuscripts that are listed in catalogs as containing Jurjānī's commentary actually contain the commentary by the fourteenth-century North African scholar al-Sharīf al-Tilimsānī (on whom there is an entry in the following chapter), the two Sharīfs obviously having been confused by later scribes and catalogers (Bodleian, Oxford: MS Arab.e.215 and Maktabat-i Fāẓil-i Khwānsārī, Khwansar, nr. 126 [Markaz-i Ihya-yi Mīrāth-i Islāmī, Tehran: Microfilm nr. 17]).
- 5) Some works on logic by the much earlier physician Zayn al-Dīn Ismā'īl al-Jurjānī (d. 531/1136) have also been misattributed to al-Sayyid al-Sharīf al-Jurjānī, for example the treatises *Ta'liq al-qiyās* (Annotating the Syllogism) and *Fī iktisāb al-muqaddimāt* (On the Acquisition of Premises), both erroneously included in a list of works on logic by the later Jurjānī (in Van Ess 2013, 71). On the earlier Jurjānī, see J. Schacht, "al-Djurdjānī, Ismā'īl b. Ḥusayn", EI2; Rescher 1964, 168–9).
- 6) Later Indo-Muslim scholars attributed a short commentary on Abharī's *Īsāghūjī* to Jurjānī, and this was lithographed on a number of occasions in India in the nineteenth century with the title *Mīr-i Īsāghūjī* (see Jurjānī 1309/1891–2). There are, however, no early references to Jurjānī having written such a commentary. It is not included in the list of Jurjānī's works reproduced by the historian al-Sakhāwī (d. 902/1497) on the authority of Jurjānī's great-grandson whom he met in Medina (Sakhāwī 1935–7, V, 329), nor is it included in the list of commentaries on the *Īsāghūjī* given by the Ottoman bibliographer Kātib Çelebī (d.

1067/1657) (Kātib Çelebî 1941–3, I, 206–208). Given Jurjānī’s reputation throughout the Turco-Persianate Islamic world, it is surprising that Ottoman and Persian scholars should have been unaware of the work. This might lead one to suspect that another commentator on the *Īsāghūjī* who was a “Sharīf” (a descendant of the Prophet) came to be confused with Jurjānī in the later Indo-Muslim tradition. On the other hand, internal evidence supports the attribution to Jurjānī. The commentator at one point (Jurjānī 1309/1891–2, 9) referred the reader to his gloss on Quṭb al-Dīn’s commentary on Kātibī’s *Shamsiyya*. The dedicatee of the work is given in the Indian lithograph editions as “Ghiyāth al-Islām wa Mughīth al-Muslimīn Amīr Muḥammad”, and this may well be a slightly corrupt reference to Ghiyath al-Din Pīr Muḥammad (d. 812/1409), a grandson of Tamerlane who governed Fars and to whom Jurjānī dedicated his widely studied commentary on Ījī’s compendium of philosophical theology *al-Mawāqif* (The Stations).

- 7) A handbook on dialectics that was widely studied in India, and known there as *al-Risāla al-Sharīfiyya*, has also been attributed to al-Jurjānī. Again, the treatise appears to have been unknown outside the Indian subcontinent and is not mentioned by the historian al-Sakhāwī or the Ottoman bibliographer Kātib Çelebî. It would be good to know when and where the attribution to Jurjānī was first made, and to locate and study early extant manuscripts. Given the uncertainty, I have included a closer description of the work, along with a standard commentary, in a later chapter on Indo-Muslim logic.
- 8) A treatise on fallacies (*mughālaṭāt*) that is extant in a number of copies has also been attributed to Jurjānī (Mach & Ormsby 1987, nr. 1236). But many of these extant copies are anonymous, so further research is needed before the attribution can be confirmed.
- 9) A short treatise on disjunctions (*al-tardīd al-infiṣālī*), extant in a number of manuscripts (Mach 1977, nr. 3260).
- 10) A short introductory handbook on logic in Persian, known by the title *Ṣughrā* (Minor) to distinguish it from his somewhat longer introduction entitled *Kubrā* (see the following item). There are two purported printings of this work, one in a miscellany of logic handbooks lithographed in Lucknow in 1872 (*Majmū‘a-yi manṭiq*, pp. 1–9), the other edited (on the basis of a single late manuscript) by Murtaẓā Mudarrisī

Chahārdahī and published along with the longer *Kubrā* in Tehran in 1334/1956 (Jurjānī 1334/1956, pp. 23–28). Intriguingly, the texts of the two editions do not agree at all – they are simply two different works. The Indian lithograph is the one that contains Jurjānī's *Ṣughrā*, as shown by the Arabic translation of the work prepared by Jurjānī's son Muḥammad b. al-Sharīf (d. 838/1434–5) and printed in a miscellany in Cairo in 1328/1910 (*Majmū'at al-rasā'il*, pp. 279–291). In the introduction, the son wrote that he was translating a Persian work that his father had written for him, but with a few additions of his own (most notably a concluding section outlining the principles of dialectics). The Arabic translation in general follows the Persian text of the Indian lithograph, with the exception of the mentioned additions. It bears no relation to the treatise published by Chahārdahī. The latter treatise may not be by Jurjānī at all, and may therefore be yet another work falsely attributed to him in later centuries.

- 11) Another, longer introductory handbook on logic in Persian, known by the title *Kubrā* (Major) to distinguish it from the previously mentioned *Ṣughrā*. This appears to have been a popular introduction in the Persian-speaking world, eliciting a number of commentaries and versifications in later centuries. It too was translated into Arabic. Jurjānī's aforementioned son Muḥammad b. al-Sharīf prepared a somewhat expanded Arabic version that circulated under the title *al-Ghurra* (The Most Excellent) (Jabālruḍī 1983, 21). However, the text of the *Ghurra* does not correspond to the text of another, more literal Arabic translation that is extant in a number of manuscripts (Mach 1977, nr. 3258) and was printed in Istanbul in 1288/1871 (Jurjānī 1288/1871, 16 pp.). And that translation is obviously not by Muḥammad b. al-Sharīf, for the translator wrote that Jurjānī had composed the original Persian treatise for “his noble son”, and that he – the translator – was translating it into Arabic for the benefit of his own son. Probably due to this statement, the translation circulated under the title *al-Risāla al-Waladiyya* (“The Son Treatise”). The *Kubrā* is comparable in scope to Abharī's *Īsāghūjī* but is more expansive concerning the division of science into conception and assent, types of reference, and singular and complex utterances. It introduces some of the basic modality propositions, though without exploring their conversion, contraposition or the modal

sylogism. It gives the conditions of productivity of the first three syllogistic figures (Abharī had only discussed the first) but does not include a discussion of the matter of the syllogism, simply ending with the reiterative-hypothetical syllogisms: *modus ponens*, *modus tollens* and disjunctive syllogism. The work was lithographed in Lucknow in 1872 in a miscellany of logic handbooks (*Majmū‘a-yi manṭiq*, pp. 10–50), and printed in Tehran in 1334/1956 in an uncritical edition prepared by Murtaẓā Mudarrīsī Chahārdahī on the basis of a single, seventeenth-century manuscript (Jurjānī 1334/1956, pp. 5–23). In this case, the Tehran printing and the Indian lithograph are of the same work, though with the expected minor variants. The following is an overview of the contents of the work:

- a. Introduction
- b. Conception and assent
- c. Evident and non-evident conceptions and assents
- d. The derivation of non-evident from evident conceptions and assents
- e. Logic as the rules for the derivation of non-evident conceptions and assents
- f. Reference
- g. Types of reference
- h. Types of conventional reference
- i. Singular and complex utterances
- j. Singular utterances: Verbs, nouns and particles
- k. Complex utterances: Complete and incomplete
- l. Universals and particulars
- m. The five universals
- n. Descriptions and definitions
- o. Propositions. Categorical and hypothetical
- p. Quantified and unquantified propositions
- q. Metathetic predicates
- r. Modalities
- s. Conversion
- t. Contradiction
- u. Argument (*hujja*): Inductive, analogical, and deductive

- v. Syllogism. The four figures
- w. Conditions of productivity of the first three figures
- x. Reiterative-hypothetical syllogisms

#### (iv) Ḥācī Pāṣā Hızır Aydınlı (Yildiz 2014)

A contemporary and possibly an acquaintance of Jurjānī, Ḥācī Pāṣā appears to have been born in Konya in central Anatolia. He went to Cairo to pursue his studies, traveling via Damascus where he attended the lessons of the ageing Quṭb al-Dīn al-Rāzī. In Cairo, he studied with the illustrious Ḥanafī jurist Akmal al-Dīn al-Bābartī (d. 786/1384) and with Jurjānī's elusive teacher "Mubārak-shāh". He returned to Anatolia in 771/1370, settling in the Aydinid principality (*beylik*) in southwestern Anatolia. He there enjoyed the patronage of the local ruler, and wrote a number of works on logic, philosophical theology, and medicine. He was still alive as late as 824/1421 when he dedicated a work – an exegesis of the Quran – to the Ottoman Sultan Murad II (r. 824/1421–855/1451) who incorporated the Aydinid principality into the Ottoman Empire.

In 784/1382, Ḥācī Pāṣā authored an extant gloss on Quṭb al-Dīn al-Rāzī's commentary on Urmawī's *Maṭālī* ' (see Princeton University Library, Islamic MSS, Garrett Y4385, 188 folios, 19 lines per page, copied in 811/1409). Unlike Jurjānī, Ḥācī Pāṣā covered the entirety of Quṭb al-Dīn's commentary, not only the section on "conceptions". His gloss nevertheless appears to have been largely supplanted by Jurjānī's gloss, even in Anatolia, presumably in part because of prestigious incoming Eastern scholars who had studied with Jurjānī such as 'Alī al-'Ajamī (d. 860/1456) and Faṭḥullāh al-Shirwānī (d. 857/1453). Extant manuscripts of Ḥācī Pāṣā's gloss appear to confirm this trajectory. Around a dozen extant copies are known, but almost all of these are dated before the middle of the fifteenth century, suggesting that the work was rarely copied after that time.

#### (v) Mehmed Fenārī (M. Zilfi, "Fenārīzāde" EI3)

Fenārī was born in 751/1350 in western Anatolia. He went to Cairo to complete his studies, as was common among Anatolian scholars before Sultan Mehmed II (r. 855/1451–886/1481) established his famous "Eight Schools" in Istanbul. Upon his return, he became a teacher, judge and later Mufti in Bursa (the intel-

lectual center of the Ottoman Empire before the conquest of Constantinople), where he died in 834/1431. His works on logic are:

- 1) A commentary on Abhari's *Īsāghūjī*. This was lithographed and printed on a number of occasions in Istanbul in the nineteenth century, for example in 1294/1877 in 27 pages, followed (on pp. 28–80) by a gloss by a certain Kūl Ahmed b. Hızır, apparently a sixteenth-century Azeri scholar. In his introduction, Fenārī boasted of having written the commentary in a single day, and a short winter's day at that. Though the *Īsāghūjī* is an introductory work, Fenārī's commentary provides a demanding discussion of the issues raised, and a later Ottoman work on education advised the student to read it after studying Quṭb al-Dīn al-Rāzī's commentary on the *Shamsiyya* (Sāçaklızāde 1988, 140–1). It elicited numerous glosses and super-glosses by later Ottoman, Tatar and Azeri scholars. A passage from Fenārī's introduction in which he discusses what makes the numerous inquiries of logic one discipline (*jihat al-waḥda*) was sometimes commented upon in independent treatises. The passage was in part lifted from the commentary of 'Aḍud al-Dīn al-Ījī (d. 756/1355) on *Mukhtaṣar al-Muntahā*, the abovementioned handbook on jurisprudence with an opening section on logic by Ibn al-Hājjib (d. 646/1249) and from Taftāzānī's gloss on Ījī's commentary (see Ījī 1898–1900, I, 14–16).
- 2) An introductory section on logic in his esteemed summa of Ḥanafī jurisprudence *Fuṣūl al-badā'i* (Chapters of Wonders). This takes up pp. 18–69 of the first volume of the work printed in Istanbul in 1289/1872. Though Fenārī did not cover modal logic or the more technical aspects of hypothetical logic in this work, his presentation is demanding and includes critical discussions of earlier views on, for example, the division of knowledge into conception and assent, the conditions for syllogistic productivity, the reduction of the other syllogistic figures to the first, and indirect proof.

### [vi] Šā'in al-Dīn Ibn Turka (Melvin-Koushki 2012, 38–57)

Šā'in al-Dīn Ibn Turka was born in Isfahan in 770/1369 and began his studies there. He and his family were taken to Samarqand after Tamerlane's conquest

of Isfahan in 789/1387. From Samarqand, he went on the Hajj and continued his studies in Cairo. In his late thirties, he returned to Isfahan and began teaching there. He became close to the courts of Pīr Muḥammad (d. 812/1409) and his brother Iskandar (d. 818/1415), Timurid rulers in Fars who are also the dedicatees of some of Jurjānī's works. After Tamerlane's son Shāhrukh (r. 812/1409–851/1447) established control over Persia, Ibn Turka's position became precarious and he had to travel to the new court in Herat on more than one occasion to clear his name and curry the favor of the new ruler. He died in Herat in 835/1432.

Ibn Turka's reputation in later centuries was primarily linked to his mystical-theosophical works, such as his *Tamhīd al-qawā'id* (Preparation for the Rules) and his commentary on *Fuṣūṣ al-ḥikam* (Bezels of Wisdom) by the Andalusian mystic Ibn 'Arabī (d. 638/1240). His work on logic *al-Manāḥij* (The Trails), completed in 833/1430 (Melvin-Koushki 2012, 100), is also of some importance, as it shows that there were scholars in the period who were dissatisfied with mainstream post-Avicennian logic and harked back to the way of the "older logicians". Ibn Turka's introduction to the work states that he wished to write for his son a work that presents the pristine, unadulterated truths of logic as taught by "olden" teachers, cleansed of adventitious "eristic doubts" (*tash-kikāt jadaliyya*) (Ibn Turka 1997, 1). This kind of rhetoric, which associated "later scholars" with "eristic" and "sophistical doubt", and "the ancients" with "certainty" (*yaqīn*) and "demonstration" (*burhān*), would later reappear in the writings of some Safavid philosophers. Stylistically too, Ibn Turka prefigured later scholars such as Mīr Dāmād, with his frequent sententious exhortations to the reader to heed the wisdoms being imparted, and overblown portrayals of the "later scholars" as not simply mistaken about this or that point of logic (as Ṭūsī and Ḥillī had argued) but as willful enemies of true "wisdom" (*ḥikma*). The following passage from Ibn Turka's work is illustrative:

As for the two possibility propositions [e.g. "Every J is possibly B" or "Every J is contingently B"], they convert to an absolute possibility proposition ["Some B is possibly J"], since its contradictory ["Every B is necessarily not J"] converts to a proposition ["Every J is necessarily not B"] that is incompatible with the original proposition or contradicts it. This suffices as an exposition of this section [on conversion]. But the later logicians, as is their wont, have delved at length into this, and made distinctions among quantified propositions, all of no use except to waste ink and make books longer. The one who is clever and alert should not rely on these and waste his precious

time, and instead spend his life on what benefits him, and heed the saying of the Prophet, “Part of being a good Muslim is not prying into issues that are not of one’s concern” (Ibn Turka 1997, 55).

There is no new argument here, despite the bombast. The proof offered by Ibn Turka had been thoroughly criticized by the revisionist-Avicennian logicians of the thirteenth century.

Rhetorical antiquarianism aside, Ibn Turka’s relatively short summa is organized around the acquisition of conceptions and assents, like most post-Avicennian works. It includes a discussion of the thirteen modality propositions canonized by Rāzī and Khūnājī, takes into account the wholly hypothetical syllogism, and even divides the syllogism into four figures. However, it devotes noticeably more attention to demonstration and related issues (traditionally treated in Aristotle’s *Posterior Analytics*) than was usual in mainstream post-Avicennian logic. The following is an overview of the contents, with the corresponding page numbers in the edition of Ibrahim al-Dībājī published in Tehran in 1376/1997.

- 1) Preamble and Introduction (pp. 1–5)
- 2) First *manhaj*: On the explicative statement (pp. 35–64)
  - a. On its preliminaries. On types of conventional reference. On singular and complex utterances. On the universal and its kinds
  - b. On verifying the means to acquire conceptions. On the general conditions of explicative statements. On description and definition
- 3) Second *manhaj*: On verifying the means of acquiring assents, which is called “argument” (*ḥujja*) (pp. 65–94)
  - a. On the preliminaries of the argument. On premises; on the divisions of propositions. On quantified propositions. On metathetic predicates. On modality propositions. On contradiction. On conversion. On contraposition. On hypothetical propositions
  - b. On verifying the means to acquiring assents, i.e., argument. On its quiddity. On its divisions. On the conditions of productivity. On modal syllogisms. On combinatorial-hypothetical syllogisms. On how to derive categorical propositions from combinatorial-hypothetical syllogisms. On the reiterative-hypothetical syllogism. On complex and indirect syllogisms



- 4) Third *manhaj*: On the way of acquisition and the varieties of its matter (pp. 95–102)
  - a. On how to construct definitions and syllogisms with a desired concept or conclusion already in mind
  - b. On the epistemological status of premises
  - c. On the five arts
  - d. On induction and analogy
- 5) Fourth *manhaj*: On scientific acquisition (*al-kawāsib al-ta'limiyya*) (pp. 103–113)
  - a. On the four questions: what, which, whether, and why
  - b. On the order of questions
  - c. On a problem pertaining to questions involving impossible concepts
  - d. On that-demonstration and why-demonstration
  - e. On science and its parts
  - f. On the order of sciences

### (vii) **Ḳaraca Aḥmed (Ṭāṣköprüzāde 2010, 193–4)**

Ḳaraca Aḥmed b. Abī Yazīd hailed from the region of Ṣarūḥān around the town of Manisa in western Anatolia. He taught in Ottoman Bursa and died there in 854/1450. Biographical entries supply no information about his teachers, though it is likely that he met Meḥmed Fenārī, the most eminent Ottoman scholar of the previous generation who was also active in Bursa. He appears to have been a well-known teacher of logic, judging from the number of commentaries and glosses he wrote on standard handbooks in the field. Writing a century later, the Ottoman scholar Ṭāṣköprüzāde (d. 968/1561) related that Ḳaraca Aḥmed was slow-witted and therefore struggled as a student, but nevertheless succeeded in becoming an accomplished scholar through sheer diligence. His writings on logic are:

- 1) A super-gloss on the gloss of Jurjānī on Quṭb al-Dīn al-Rāzī's commentary on the *Shamsiyya* (Mach 1977, nr. 3198).
- 2) A relatively short gloss on Taftāzānī's commentary on the *Shamsiyya* (Mach 1977, nr. 3216).

- 3) A gloss on Ḥusām al-Dīn al-Kāfī's commentary on Abharī's *Īsāghūjī*. This appears to have been his most widely copied work, and there are numerous extant copies of it in Turkish libraries, for example Süleymaniye Library, Istanbul: Laleli 2597 (20 fols.); Laleli 2601 (fols. 28–46); Reisülkuttāb 1177 (fols. 163–173); Amcazade Hüseyin Paşa 331 (fols. 1–35). (For further copies, see also Mach 1977, nr. 3161.)
- 4) A commentary on Abharī's *Īsāghūjī* (Mach 1977, nr. 3180).

### (viii) al-Sayyid 'Alī al-'Ajamī (Ṭāşköprüzāde 2010, 93–94)

This scholar was reportedly a student of al-Sayyid al-Sharīf al-Jurjānī. He settled in the Ottoman Empire during the reign of Sultan Murād II (r. 824/1421–855/1451) and was granted a teaching position at a college in Bursa. He died in 860/1456.

'Alī al-'Ajamī wrote two widely copied works on logic:

- 1) A gloss on Quṭb al-Dīn al-Rāzī's commentary on the *Shamsiyya* and on Jurjānī's glosses (Mach 1977, nr. 3199). As indicated in Mach's catalog, the gloss was divided into three parts of roughly equal length, each with its own preamble, covering (i) preliminaries, (ii) the five universals, and (iii) assents. Not all extant manuscripts include all three parts.
- 2) A gloss on Jurjānī's gloss on Quṭb al-Dīn al-Rāzī's commentary on the *Maṭāli'*, completed in 849/1445 (Mach 1977, nr. 3226; Karatay 1966, nr. 6871).

Intriguingly, the Egyptian historian al-Sakhāwī (d. 902/1497) included a biographical notice (Sakhāwī 1935–7, V, 158–159) on a student of Jurjānī with a very similar name and the same date of death: al-Sayyid 'Alī al-Shīrāzī (d. 860/1456). This scholar settled in Medina in 840/1437 and lived there until he died. He wrote a commentary on Abharī's *Īsāghūjī* that is described as being four quires long. Despite the similarity in dates of death and names (Shiraz is in Persia and "al-'Ajamī" means "the Persian") and the link to Jurjānī, Sakhāwī's obituary mentions nothing about an earlier spell in the Ottoman Empire, and Ottoman biographical notices of 'Alī al-'Ajamī do not mention that he retired to Medina to-

ward the end of his life, so it is likely that these were simply different students of Jurjānī.

### (ix) ‘Imād al-Fārisī

This scholar appears to have escaped the notice of pre-modern biographical works. In some of his writings, he gave his name as ‘Imād b. Yahyā al-Fārisī. The colophons of some extant manuscript copies of his works indicate that he was active in Herat in the third quarter of the fifteenth century. His writings on logic include:

- 1) A gloss on Quṭb al-Dīn al-Rāzī’s commentary on Kātibī’s *Shamsiyya* and on Jurjānī’s gloss. It only covers “conceptions”, i.e., the part of Quṭb al-Dīn’s commentary and Jurjānī’s gloss dealing with the preamble, the division of knowledge into conception and assent, the subject matter of logic, kinds of linguistic reference, the five universals, and definitions. It was completed in Herat in 850/1446 (see Tehran: Kitāb-khāne-yi Madras-i ‘Ālī-yi Shahīd-i Muṭahharī: MS Sipahsalar 3024). The introduction suggests that it was written while Fārisī was still a student. The gloss was printed in Istanbul in 1287/1870 (128 pp.).
- 2) A commentary on Abhari’s introductory *Īsāghūjī*, completed in 869/1464 (‘Arshi 1971–, IV, 252–253).
- 3) The same scholar may have written a gloss on the commentary of Mas‘ūd al-Shirwānī (d. 905/1499) on Samarqandī’s handbook on *ādāb al-baḥth* (Mach 1977, nr. 3342). The Ottoman bibliographer Kātib Çelebī (d. 1067/1657) referred to the author of the gloss as ‘Imād al-Dīn Yahyā b. Aḥmad al-Kāshī, whom he surmised was “a scholar of the tenth [i.e. sixteenth] century” (Kātib Çelebī 1941–43, I, 39). Though the glossator may have died in the early sixteenth century, the gloss must have been written in the fifteenth, for one extant manuscript dates from 898/1492–3 (Süleymaniye Library, Istanbul: Kadızade Mehmed 462, folios 1–29) and the gloss was already being glossed in turn by Ottoman scholars active in the early decades of the sixteenth century, such as Şüca‘uddīn İlyās (d. 929/1522–3) and his son Lūṭfullāh (d. 940/1533) (Kātib Çelebī 1941–43, I, 40). The name given by Kātib Çelebī is – suspiciously – that of the author of a short biography of Avicenna, writ-

ten in 754/1353 (see Yahyā b. Aḥmad al-Kāshī, *Nukat fī aḥwāl al-Shaykh al-ra'īs Ibn Sīnā*, edited by Aḥmad Fu'ād al-Ahwānī [Cairo: Manshūrāt al-Ma'had al-Faransī, 1952]). It is of course impossible for a fourteenth-century scholar to have written a gloss on Shirwānī's commentary. 'Imād al-Dīn Yahyā may be a corruption of 'Imād ibn Yahyā (easily made in Arabic script). The attributive "al-Kāshī" may have been falsely supplied by Kātib Çelebī (or by his source) due to confusion with the earlier scholar. But even if accurate, it need not be incompatible with the attributive "al-Fārisī". "Kāshī" probably derives from the town of Kāshān near Isfahan, though there are other possibilities, such as Kāsh near Hamadan or Gāsh near Mashhad. The geographic term "Fars" usually denotes the highland region of southwestern Persia, south of Hamadan and Isfahan, but it is sometimes used in a wider sense, and in any case someone who was born in Kāshān, for example, but of a family that originated from Fars might have been known by both attributives, depending on context. Identifying the glossator with 'Imād b. Yahyā al-Fārisī, though tentative, would fit both the time in which the gloss must have been written, i.e., the third quarter of the fifteenth century, and the place – the commentator Mas'ūd al-Shirwānī died in Herat in 905/1499, probably at an advanced age, for he was a student of Jurjānī's student Faṭḥullāh al-Shirwānī (d. 857/1453) and his commentary was written before 852/1448 (the date of a manuscript copy extant in the British Library, London: Or. 3124). In any case, the gloss was widely studied in the sixteenth and seventeenth centuries in Ottoman madrasas and elicited a number of super-glosses from Ottoman scholars in this period (see, for example, Mach 1977, nrs. 3343–3344). On account of its difficulty, it was dubbed *kara ḥāṣiye* ("The Opaque Gloss") (Kātib Çelebī 1941–43, I, 39).

### (x) Mullā Dā'ūd al-Khwāfī (Navā'ī 2000, 171–172)

'Iṣām al-Dīn Dā'ūd al-Khwāfī was active in Herat in the middle decades of the fifteenth century. The Timurid ruler of Central Asia and northeastern Iran Abū Sa'īd Mīrzā (r. 855/1451–873/1469) appointed him tutor to his son Maḥmūd Mīrzā (b. 857/1453–d. 900/1495). When Abū Sa'īd Mīrzā was defeated and killed and the forces of Ḥusayn Bayqara took control of Herat in 873/1469,

Mullā Dā'ūd accompanied Maḥmūd Mīrzā to Ḥiṣār-i Shadmān (in present-day Tajikistan) where he was appointed Şadr (head of religious foundations). He died there at some point before 899/1494. The seventeenth-century Ottoman bibliographer Kâtib Çelebî mentioned him as a student of Taftāzānî (Kâtib Çelebî 1941–3, 1063), probably because Mullā Dā'ūd referred to Taftāzānî as “the teacher” (*al-ustādh*) in his most widely known work (nr. 1 below). Nevertheless, it is unlikely that a student of Taftāzānî (who died in 792/1390) was still teaching a Timurid prince around the year 870/1465. Mullā Dā'ūd could at most have studied with some of Taftāzānî's students.

Mullā Dā'ūd's writings on logic include:

- 1) A lengthy and much-studied gloss on Quṭb al-Dīn al-Rāzī's commentary on Kâtibî's *Shamsiyya* and on Jurjānî's gloss thereon. The numerous manuscripts of this work attest to its widespread use in colleges throughout the Turco-Persianate world. The main part covering “conceptions” (*taṣawwūrāt*) was printed in Istanbul in 1285/1868 (204 pp.) There are a few manuscripts of the work that purport to include Mullā Dā'ūd's glosses on the later part on “assents” (*taṣdīqāt*), for example Süleymaniye Library, Istanbul: Fatih 3270 (46 folios, copied in 946/1539–40). Most manuscripts do not include this later part. In many catalogs, the gloss is attributed to the Ottoman scholar Ẓāra Dāwūd Kūçevî (d. 948/1542), but this is a misattribution noted and corrected already by Kâtib Çelebî (Kâtib Çelebî 1941–3, 1063). Mullā Dā'ūd al-Khwāfi's gloss is mentioned as being “well-known among students” in a near-contemporary Persian source (Navā'ī 2000, 171–172), whereas the Ottoman scholar and biographer Ṭaşköprüzade (d. 968/1561) explicitly noted that his contemporary Ẓāra Dāwūd Kūçevî did not compose any works (*lam yashtaghil bi-l-taṣnīf*) (Ṭaşköprüzade 1389/2010, 348).
- 2) Also attributed to “Mullā Dā'ūd” is a gloss on the gloss of Jurjānî on the early parts of Quṭb al-Dīn al-Rāzī's commentary on Urmawî's *Maṭālî*. There are numerous extant manuscripts of this work, for example: Süleymaniye Library, Istanbul: Ragıp Paşa 890 (120 fols.); Köprülü Library, Istanbul: Mehmed Asım Bey 289 (196 fols.); Ayatollah Mar'ashî Library, Qom: MS 6359 (95 fols.); Raza Library, Rampur: 3294 al-Manṭiq/2741M (147 fols.); Princeton University Library: Islamic Manuscripts,

New Series 69 (fols. 3–139). It is, however, not entirely certain that this work is by the same scholar who wrote the former gloss. Mach and Ormsby (Mach & Ormsby 1987, nr. 696) attribute the work to a certain Dā'ūd al-Shirwānī and note that a number of manuscripts attribute it to yet other scholars. On the other hand, there is internal evidence that the two glosses are by the same person, and that they were thought to be by the same person by Muslim logicians in the seventeenth century (see Sharī'atī 2004, (3) 257n1).

### (xi) Šadr al-Dīn al-Dashtakī (Pourjavady 2011, 16–24)

Mīr Šadr al-Dīn Muḥammad al-Ḥusaynī al-Dashtakī was born in Shiraz in 828/1425, to a family that claimed descent from the Prophet. He is known to have studied in his hometown with some of Jurjānī's students, and in turn became a renowned teacher of the philosophical sciences and established his own madrasa in Shiraz, the Maṣūriyya, in 883/1478. A number of his works bear dedications to the Āq Qoyunlū ruler Sultan Ya'qūb (r. 883/1478–896/1490) and the Ottoman Sultan Bayezid II (r. 886/1481–918/1512). He was killed in 903/1498 in connection with an uprising against a rebellious governor of Shiraz.

Šadr al-Dīn Dashtakī became involved in wide-ranging and acrimonious debates with his contemporary and fellow-townsmen Jalāl al-Dīn al-Dawānī (d. 908/1502). The controversies unfolded mainly in various glosses and counter-glosses on the commentary by 'Alī al-Qūshjī (d. 879/1474) on Ṭūsī's *Tajrīd al-'aḳā'id*, and more precisely on the first section of that commentary, dealing with general metaphysics (*umūr 'amma*) (for an overview of some of the disputes between the two scholars, see Pourjavady 2011, 86–105; Pourjavady 2016; El-Rouayheb 2010, 92–104). Though primarily concerned with metaphysics, these controversies touched on numerous issues in logic. For example, the two scholars debated whether a copula is necessary in propositions such as “J exists” or such propositions – unusually – have no copula and only a subject and a predicate (Dashtakī held that a copula was not necessary in such propositions, and Dawānī denied this), and whether relational inferences are valid as they are or must be rephrased as standard syllogisms with three terms (Dawānī thought they were valid as they are, and Dashtakī denied this). They also discussed the liar paradox in these glosses, and both scholars went on to write independent treatises on the topic. Their treatises, and those of their immediate students,

constitute the most intensive scrutiny of this paradox in the Arabic tradition. (On the liar paradox in the Arabic tradition, see Alwishah & Sanson 2009; Alwishah & Sanson 2016; Miller 1985.)

Dashtakī was deeply influenced by Avicenna and inclined to value him over “the later scholars”. He esteemed Avicenna’s *Shifā’*, often preferring its more expansive discussions to those in the *Ishārāt* and its commentaries. He also regularly cited the works of early Avicennian logicians such as Bahmanyār (d. 457/1065) and ‘Umar b. Sahlān al-Sāwī (fl. 520s/1130s). But it is important to note that this was not simply a debate between partisans and opponents of Avicenna, for Dawānī esteemed Avicenna as well. Rather, the two rivals often disagreed over what Avicenna’s position had been. They also engaged with a range of issues not explicitly addressed by Avicenna, and with thinkers who postdated him.

Apart from the profound and scattered discussions of logical issues in his glosses on Qūshjī’s commentary, Dashtakī’s logical works include:

- 1) A gloss on Quṭb al-Dīn al-Rāzī’s commentary on the *Shamsiyya* and Jurjānī’s glosses thereon. This survives in a number of manuscripts and appears to have been the most widely read and copied of Dashtakī’s strictly logical works. Two early manuscripts, copied in the lifetime of the author, are in the Ayatollah Mar’ashī Najafī Library in Qom, nr. 8459 (82 fols., 15 lines per page) and in the Süleymaniye Library in Istanbul, Carullah 1371 (40 fols., 19 lines per page). As with most glosses on this work, Dashtakī’s focuses on the earlier parts dealing with preliminary topics, the acquisition of concepts, and propositions.
- 2) At least one gloss on Quṭb al-Dīn al-Rāzī’s commentary on *Maṭālī’ al-anwār* and Jurjānī’s glosses thereon, written in response to glosses by Dawānī on the same work (Milli Library, Tehran: 2717’ayn, 117 fols. & Mar’ashī Najafī library, Qom 7312, fols. 61–138). (He may have written more than one gloss; see Pourjavady 2011, 81.) It appears that these glosses and counter-glosses dealt with semantic, philosophical and theological issues raised by the preamble of Quṭb al-Dīn al-Rāzī’s commentary, and hardly dealt with logical topics at all.
- 3) A treatise on the liar paradox, edited by Āḥad Farāmarz Qarāmalekī in the collection *Davāzda risāla dar pāradūks-i durūghgū* (Tehran, Iranian Institute of Philosophy, 2007), pp. 27–62. Dashtakī’s treatment of the

liar paradox, which seems original, is as follows: Truth and falsity are only applicable to statements. Only if Zayd makes a statement (*khābar*) can we say that his statement is true or false. A reiteration of the truth or falsity predicate requires a further statement, viz. “Zayd’s statement is true (or false)”. Otherwise, we would have one statement and two applications of the truth or falsity predicate, resulting in badly formed sentences such as:

Zayd’s statement is true (or false) is true (or false)

as opposed to the well-formed:

“Zayd’s statement is true (or false)” is true (or false).

In the case of “My statement now is false”, we have one statement (the one picked out by the subject term “My statement now”) and one application of the predicate “false”. There are, *ex hypothesi*, no further assertions and therefore no grounds for reiterating the truth or falsity predicate and describing “My statement now is false” as either true or false.

### **(xii) Jalāl al-Dīn al-Dawānī (Pourjavady 2011, 4–16, Pourjavady 2016)**

Dawānī was born around the year 830/1426 in the village of Davān near Kāzerūn in Fars, and began his studies with his father and another local scholar, both students of Jurjānī. He moved to nearby Shiraz to continue his education. He later enjoyed the patronage of the Qara Qoyunlū ruler Jahān Shāh (r. 839/1436–872/1467) and spent time at the court in Tabriz. He returned to Shiraz after the defeat of the Qara Qoyunlū by the rival Āq Qoyunlū, but continued to enjoy the patronage of the new rulers Ūzūn Ḥasan (r. 872/1467–882/1477) and his sons Khalīl (r. 882/1477–883/1478) and Ya‘qūb (r. 883/1478–896/1490), being appointed Chief Judge of Fars by the latter. Many of his works are dedicated to rulers beyond Persia, among them the Ottoman Sultan Bayezid II. Dawānī died in 908/1502, less than two years before the Shiite Safavids conquered Shiraz.



Dawānī was arguably the most influential and original logician in the Eastern Islamic lands in the fifteenth century. As mentioned above, his three sets of glosses on Qūshjī's *Sharḥ al-Tajrīd* contain numerous profound discussions with his rival Ṣadr al-Dīn al-Dashtakī on points of logic. These discussions have yet to be studied thoroughly, but an example of such a discussion relates to the relational syllogism (El-Rouayheb 2010, 92–104). Dawānī argued, against Dashtakī, that a middle term could recur in the second premise with “addition” or “subtraction” without this impugning syllogistic productivity. For example, the following syllogism is, he argued, valid:

The world is composite

To every composite there is a composer

To the world there is a composer

In this example, the middle term is “composite” and recurs in the second premise with the addition of the preposition “to” (*li-*). As an example of a middle term that recurs “with subtraction”, Dawānī mentioned the following:

Zayd is the brother of ‘Amr

‘Amr is the leader of the town

Zayd is the brother of the leader of the town

Here, “brother of ‘Amr” is the predicate of the minor premise, and “‘Amr” alone is the subject of the major.

Dawānī also authored a number of works specifically on logic, and these continued to be intensively studied in later centuries, especially in Mughal India and Ottoman Turkey. These include:

- 1) A commentary on Taftāzānī's *Tahdhīb al-manṭiq*. Though incomplete, not covering the later sections on contradiction, conversion and syllogism, this work was the most influential work in the Eastern Islamic tradition from the fifteenth century, and it elicited numerous glosses and super-glosses in later centuries in Safavid Iran, Mughal India and Ottoman Turkey. It was printed in Istanbul in 1305/1887 in 52 pages, along with the gloss of Mīr Abū l-Faṭḥ (d. 976/1568–69) (152 pp.), and Taftāzānī's handbook (8 pp.). The early part of the commentary has

also been lithographed on a number of occasions in India in the nineteenth century, with the gloss of Mīr Zāhid Harawī (d. 1101/1689–90). The tone of the work is set in the introduction, in which he wrote:

I have not heeded what is commonly accepted, for truth is more worthy of being followed, and I have not stood still at the station of what has already been said, for the pathway of reasoning is open. Instead, I have shown the unsullied way and churned the cream of plain truth. I have presented verified points that are absent from commonly circulating books, and indicated subtle intricacies not contained in lengthy tomes (Dawānī 1887, 2).

The work includes – inter alia – a defense of Avicenna’s realist position regarding universals (pp. 30–31) and an influential criticism of Quṭb al-Dīn al-Rāzī’s view that a proposition has four parts: subject, predicate, copula and judgment (pp. 36–37).

- 2) A gloss on Jurjānī’s gloss on Quṭb al-Dīn al-Rāzī’s commentary on the *Shamsiyya*. This focuses mainly on the early parts of Jurjānī’s gloss, dealing with introductory matters and the acquisition of concepts. It has been lithographed in India (Delhi: al-Maṭba‘ al-Mujtabā’ī, no date, 40 pages) and printed in Cairo as an appendix to the monumental edition of Quṭb al-Dīn al-Rāzī’s commentary with the glosses of Jurjānī, Siyālkūtī and Dasūqī (Cairo: al-Maṭba‘a al-Amīriyya, 1323/1905, vol. II, 256–286).
- 3) A gloss on the commentary of Mas‘ūd al-Shirwānī (d. 905/1499) on Samarqandī’s treatise on *ādāb al-baḥṭh* (see Mach 1977, nr. 3341).
- 4) Two glosses on Quṭb al-Dīn al-Rāzī’s commentary on *Maṭāli‘ al-anwār* and Jurjānī’s glosses thereon (Pourjavady 2011, 81). The second of these was in response to a counter-gloss by Dashtakī. As noted earlier, these glosses dealt with semantic, philosophical and theological issues raised by the preamble of Quṭb al-Dīn al-Rāzī’s commentary, and hardly dealt with logical topics at all. For an early manuscript of his first gloss, see Mach & Ormsby 1987, nr. 694. For an extant manuscript copy of his second gloss, entitled *Tanwīr al-Maṭāli‘* (Casting Light on The Dawning), see Khuda Bakhsh 1963–, XXI, nr. 2261 (153 folios, 19 lines per page, copied in Shiraz in 1049/1639).
- 5) A treatise on the liar paradox, entitled *Nihāyat al-kalām fī ḥall shubḥat kullu kalāmī kādhib* (The Ultimate Discourse on Solving the Soph-

ism of ‘All My Discourse is False’), edited by Āḥad Farāmarz Qarāmalekī in the collection *Davāzda risāla dar pāradūks-i durūghū* (Tehran: Iranian Institute of Philosophy, 2007), pp. 101–155. Dawānī’s solution to the paradox is that the offending sentence “My statement now is false” is not a proposition. This is because a proposition must relate an independent state of affairs and in this way be a candidate for truth or falsity. The offending sentence “My statement now is false” does not relate that there is a nexus between subject and predicate that is prior to, and independent of, the sentence itself; rather the very uttering of the sentence brings about the nexus. In such a case, there is no distinction between the nexus in the sentence itself and the nexus that obtains apart from the sentence. Since such a distinction is essential to being a proposition, the offending sentence is not a proposition, even though it may superficially have propositional form. The case is analogous to a performative utterance (*inshā*) such as “I hereby sell you X” – here too the sentence superficially resembles a proposition but does not relate that an independent nexus obtains.

### (xiii) Qāḍī Mīr Ḥusayn al-Maybudī (Pourjavady 2011, 32–37)

He was born around the year 853/1449 to Mīr Mu‘īn al-Dīn al-Maybudī, a governor of the town of Yazd in Fars. He studied in Shiraz with Dawānī, and was later appointed Chief Judge of Yazd by the Āq-Qoyunlū ruler Sultan Ya‘qūb (r. 883/1478–896/1490). He was executed in 909/1504, shortly after the Shiite Safavid conquest of that city. His most widely studied and glossed work was a commentary on Abhari’s handbook of philosophy *Hidāyat al-ḥikma*. Like most commentators on Abhari’s handbook, Maybudī skipped the opening section on logic and only covered the sections on physics and metaphysics. However, he also wrote works on logic and dialectics:

- 1) A commentary on Kātibī’s *Shamsiyya*, printed in Istanbul in 1289/1872 (182 pp.). An autograph copy, dated 886/1481–2, is extant in the Chester Beatty Library in Dublin (nr. 3759, fols. 1–99). The commentary draws on Quṭb al-Dīn al-Rāzī’s commentaries on the *Shamsiyya* and Urmawī’s *Maṭāli*, with the “major” and “minor” glosses of Jurjānī, Taftāzānī’s commentary on the *Shamsiyya*, and Kātibī’s own summa

*Jāmi' al-daqa'iq*, with occasional quotations from Avicenna's *Shifā'*. Maybudī devoted approximately 45% of his commentary to preliminary matters and conceptions (compared to 33% in Quṭb al-Dīn's commentary), and approximately 33% to immediate implications and formal syllogisms (compared to Quṭb al-Dīn's 36%). Interestingly, the commentary does not engage with Dawānī's contributions to logic, for example his criticism of the quadripartite analysis of the proposition, or his discussions of universals, the liar paradox and the relational syllogism. An explanation for this might be that the commentary, like Quṭb al-Dīn's earlier commentary, was intended as an intermediate-level, rather than advanced, work.

- 2) A commentary on Samarqandī's treatise on *ādāb al-baḥth*. An auto-graph manuscript is extant in the Chester Beatty Library in Dublin (nr. 3759, fols. 100–127).

#### **[xiv] Ghiyāth al-Dīn Maṣṣūr Dashtakī (Pourjavady 2011, 24–32)**

A son of the aforementioned Ṣadr al-Dīn al-Dashtakī, Ghiyāth al-Dīn Maṣṣūr was born in 866/1461–2 in Shiraz. He studied with his father, and started teaching at the latter's college in his late twenties. After the Safavid conquest of Shiraz in 909/1504, he joined the entourage of Shah Ismā'īl I (r. 907/1501–930/1524), suggesting that he embraced Shiism. He fell out of favor shortly after the accession of Shah Ṭāhmāsp I (r. 930/1524–984/1576) and returned to Shiraz where he taught until his death in 949/1542.

Ghiyāth al-Dīn was a fervent opponent of Dawānī, regularly denouncing him in insulting terms. Like his father, he was an admirer of Avicenna and the “older logicians”. His most extensive work on logic, entitled *Ta'dīl al-mīzān*, begins by expressing a preference for the logic of Avicenna and his early followers over the “dialectical” and “rhetorical” procedure of “the later logicians” (Dashtakī 2007, I, 134–136).

Ghiyāth al-Dīn's works on logic include:

- 1) *Ta'dīl al-mīzān* (Recalibrating the Scale), a lengthy summa of logic. The work has unfortunately not been edited, and it seems that the few extant manuscripts are fragmentary. Three incomplete manuscripts are: (i)

Ayatollah Mar‘ashī Najafī Library, Qom, nr. 9698; (ii) Astān-i Quds-i Raḡavī Library, Mashhad, nr. 23954; and (iii) Majlis Library, Tehran, nr. 15636. It was organized along the lines of the *Organon* and the logic books of Avicenna’s *Shifā’*. In other words, it breaks with the dominant post-Avicennian tradition of organizing books on logic around the acquisition of concepts and assents. Some portions of the work are lifted from *al-Taḥṣīl* of Avicenna’s student Bahmanyār (El-Rouayheb 2010, 104 n. 67).

- 2) *Mi‘yār al-‘irfān* (The Measure of Gnosis), a shortened version of *Ta‘dīl al-mīzān*, printed in the modern edition of his collected works (Dashtakī 2007, II, 991–1071). Like its longer original, it is organized according to the books of the *Organon*. Interestingly, in the sections on *Prior Analytics*, he presented both a standard post-Avicennian account with four figures and more than a dozen modality propositions, and the modal logic of the older logicians with three figures and necessity and possibility as the only modalities. In the section on *Topics*, he presented the basics of both Aristotelian dialectic and the more recent science of *ādāb al-baḥṭh*. As noted by the modern editor, numerous passages were lifted from Ḥillī’s commentary on Ṭūsī’s *Tajrīd al-manṭiq*. Though to some extent an eclectic “cut-and-paste” job, Dashtakī did sometimes present his personal opinion on various issues. For example, he claimed to have found a novel way of showing the productivity of non-evident syllogisms, apart from the received methods of conversion (‘*aks*’), indirect proof (*khalf*), and ecthesis (*iftirāḍ*). The method is a combination of the latter two proofs: it assumes the contradictory of the desired conclusion; if that contradictory is a particular-affirmative proposition, it uses ecthesis and adds the resulting proposition to the premises and derives a contradiction.
- 3) *Miqyās al-naẓar* (The Standard of Ratiocination), a somewhat shorter handbook on logic that is not organized according to the books of the *Organon*. It has been printed in his collected works (Dashtakī 2007, II, 1071–1097), though on the basis of a single, defective manuscript.
- 4) A lengthy treatise on the liar paradox, in which he attempted to vindicate his father’s solution against that of Dawānī, edited by Ahad Faramarz Qaramaleki in the collection *Davāzda risāla dar pāradūks-i durūghū* (Tehran: Iranian Institute of Philosophy, 2007), pp. 159–261.

- 5) A gloss on Jurjānī's gloss on *Sharḥ al-Shamsiyya*, with critical comments on Dawānī's gloss on the same work. (See Khuda Bakhsh 1963–, XXI, nr. 2256: 144 fols., 21 lines per page.)
- 6) A gloss on Jurjānī's gloss on *Sharḥ al-Maṭālī*, with critical comments on Dawānī's gloss on the same work. (See 'Arshī 1971, IV, nr. 3298: 221 folios, 17 lines per page.)
- 7) Critical annotations to Dawānī's commentary on *Tahdhīb al-manṭiq*. A fragment of the work is extant in the Majlis Library in Tehran, nr. 3423(2).

### (xv) Hājji Mahmūd Nayrīzī (Pourjavady 2011, 53–61)

The attributive “Nayrīzī” derives from the town of Nayrīz in Fars. He studied in nearby Shiraz with Ṣadr al-Dīn al-Dashtakī, from whom he obtained a certificate in 903/1498. He also studied with Ṣadr al-Dīn's son Ghiyāth al-Dīn, indicating that he was younger than the latter. After completing his studies, he spent some years in Isfahan, Qazvin, and Gilan, enjoying the patronage of a number of Safavid grandees. From around 919/1513, he settled in Yazd. He was still alive in 933/1526, but was outlived by his teacher Ghiyāth al-Dīn Dashtakī who refers to him as deceased in one of his later writings.

Nayrīzī was a prolific writer in the philosophical sciences. Not surprisingly, he was critical of Dawānī and inclined to defend the views of his teachers the Dashtakīs. The controversies between Dawānī and the Dashtakīs may have taken on sectarian overtones in the early decades of Safavid rule, for a conspicuous number of Dawānī's students were Sunnis who were executed or had to leave Safavid Persia, whereas Ṣadr al-Dīn al-Dashtakī's most eminent students – Ghiyāth al-Dīn Dashtakī, Shams al-Dīn Khafrī (d. 942/1535–6) and Nayrīzī – were or became Shiites who enjoyed the patronage of the new Safavid order. (However, the alignment of philosophical positions and sectarian identity was not perfect, for a few of Dawānī's students were or became Shiites.)

Nayrīzī's works on logic include:

- 1) An extensive commentary on Ṭūsī's *Tajrid al-manṭiq*, completed in Qazvin in 913/1508 (Pourjavady 2011, 120–121, 156–157).
- 2) An extensive commentary on Taftāzānī's *Tahdhīb al-manṭiq*. An autograph manuscript, incomplete at the end, is extant in the Süleymaniye Library in Istanbul: Şehid Ali Paşa 1780, fols. 1–51. This was written

earlier than the commentary on Ṭūsī's *Tajrid al-manṭiq*, for one fragment from the work is dated 904/1499. (For extant manuscripts, see Pourjavady 2011, 163–167). Nayrīzī's student Shāh Mīr Hibatullāh Ḥusaynī (fl. 936/1529) also wrote a – much shorter – commentary on Taftāzānī's *Tahdhīb al-manṭiq* that is extant in a number of manuscripts (for example, British Library: MS Delhi Arabic 1531, fols. 20b–87b; Princeton University Library: Islamic MSS: Garrett 124L, 42 fols.).

- 3) A short super-gloss on Jurjani's gloss on Quṭb al-Dīn al-Rāzī's commentary on Urmawī's *Maṭāli*. (For an extant manuscript, see Pourjavady 2011, 178–179.)
- 4) Annotations to Dawānī's treatise on the liar paradox. These are extant on the margins of one manuscript copy of Dawānī's treatise (Pourjavady 2011, 129, 187–188).

### (xvi) 'Iṣām al-Dīn Ibrāhīm Isfarāyīnī (El-Rouayheb EI3)

'Iṣām al-Dīn was born in 871/1466–7 in the town of Esfarāyēn in northern Khorasan. He pursued his studies in Herat, which in the fourteenth and fifteenth centuries was a major cultural and intellectual center, rivaling Shiraz. Among his teachers were Taftāzānī's great-grandson Aḥmad b. Yaḥyā al-Ḥafīd al-Harawī (d. 916/1511) (Ḥaydar Mīrzā 2004, 306–7; Lārī 1393/2014, II, 887). He later taught in the town and enjoyed the patronage of its famed Timurid ruler Ḥusayn Bayqara (r. 874/1469–912/1506). In 926/1520, ten years after the conquest of Herat by the Shiite Safavids, he left for Bukhara in Central Asia, then under the rule of the Sunni Uzbeks, and enjoyed the patronage of 'Ubaydullāh Khān (r. 918/1512–946/1539) there. He died in 943/1536–7 while on a visit to Samarqand and was buried in that town near the shrine of the Naqshbandī Sufi Khwāja 'Ubaydullāh Aḥrār (d. 895/1490).

'Iṣām al-Dīn was one of the most eminent scholars of grammar and semantics-rhetoric of later centuries. His extensive commentary, entitled *al-Aṭwal* (The Lengthiest), on Qazwīnī's *Talkhīṣ al-Miftāḥ* (The Epitome of the Key) and his gloss on the commentary by Jāmī (d. 898/1492) on Ibn al-Ḥājib's handbook on syntax *al-Kāfiya* (The Sufficient) were particularly esteemed. He also wrote extensively on logic. His works have not yet been investigated systematically, and the nature of his contributions to the logical tradition is an open question. Unlike some of his Shirazi contemporaries, it seems he was comfortable with the

mainstream post-Avicennian tradition, as opposed to harking back to the ancients. In his most extensive work on logic (nr. 1 below), he regularly cited Kātibī's *Jāmi' al-daqa'iq* and Quṭb al-Dīn al-Rāzī's commentary on Urmawī's *Maṭāli'*, rather than Avicenna's *Shifā'*. His works on logic include:

- 1) An extensive gloss on Quṭb al-Dīn al-Rāzī's commentary on the *Shamsiyya*. This was printed in Istanbul in the nineteenth century, the volume on "assents" (*taṣdīqāt*) in 1259/1843 in 209 pages, and the volume on "conceptions" (*taṣawwūrāt*) in 1289/1872 in 307 pages. The volume on "conceptions" incorporates two shorter treatises by 'Iṣām al-Dīn, on whether a science is reducible to its issues (pp. 90–96), and on why the discussion of conceptions should precede the discussion of assents (pp. 115–124). 'Iṣām al-Dīn's gloss, though much longer than Jurjānī's, exhibits the same focus on the earlier parts of the commentary, dealing with preliminary matters, the five universals, definition, and propositions. Only a little over a tenth (13–14%) deals with contradiction, conversion, contraposition, the immediate implications of hypotheticals, and the syllogism, even though these sections cover more than a third of Quṭb al-Dīn's commentary.
- 2) A commentary on Taftāzānī's *Tahdhīb al-manṭiq*. Like Dawānī's commentary, to which it occasionally responds, the commentary is incomplete and does not cover the sections on conversion, contraposition and syllogism (Mach 1977, nr. 3248; Khuda Bakhsh 1963–, XXI, nr. 2301).
- 3) A Persian commentary on Jurjānī's *Kubrā*, the aforementioned Persian introduction to logic (Tihirānī 1936–, XIV, 31). There are a number of extant manuscripts of this work in Iranian libraries, for example MS Mar'ashī Najafī nr. 2520, 73 folios, 17 lines per page.
- 4) A commentary on a short treatise on *ādāb al-baḥṭh* by 'Aḍud al-Dīn al-Ījī (d. 756/1355) (Mach 1977, nr. 3366).
- 5) A short treatise on the logical relations that obtain between contradictories (Princeton University Library, Islamic MS, Garrett Y3122, fols. 54a–55b).
- 6) A short treatise on the three types of conventional reference: by correspondence (*muṭābaqa*), by inclusion (*taḍammun*) and by implication (*iltizām*) (Princeton University Library, Islamic MS, Garrett Y3122, fols. 56a–57a and, in a different hand, on fols. 58b–59b).



- 7) A treatise discussing a passage from Quṭb al-Dīn al-Rāzī's commentary on the *Shamsiyya* in which Quṭb al-Dīn criticized the way in which Khūnājī and "those who follow him" understood the so-called *ḥaqīqī* proposition, i.e., a proposition in which the predicate is said to be true of the subject if it were to exist (*law wujida*). For an extant manuscript, see Princeton University Library, Islamic MS: Garrett 132L, fols. 78a–81b.
- 8) A short treatise on the contradictory (*naqīḍ*) of both concepts and propositions (Mach 1977, nr. 3274). Some extant manuscripts attribute the treatise to 'Iṣām al-Dīn's contemporary Mullā Muḥammad Ḥanafī (fl. 922/1516), a scholar who, like 'Iṣām al-Dīn, was active in Herat and later fled to Central Asia after the Safavid takeover of that city. This Mullā Ḥanafī also wrote a widely studied commentary on 'Aḍud al-Dīn al-Ījī's treatise on *ādāb al-baḥth*.

### (xvii) Ḥasan b. Ḥusayn b. Muḥammad Amlashī (El-Rouayheb 2018)

This scholar was active in the year 955/1548, the date of an autograph manuscript of his summa of Ḥanafī jurisprudence entitled *Ḥall al-uṣūl* (Solving the Principles) (Süleymaniye Kütüphanesi, Istanbul: MS Kadizade Mehmed 104). The attributive "Amlashī" indicates that he hailed from the town of Amlash in the province of Gilan near the southwestern coast of the Caspian Sea. It is clear that he later settled in the Ottoman Empire, for a number of his autograph manuscripts are extant in Istanbul, and he dedicated works to Ayās Mehmed Pāṣā, Ottoman Grand Vizier from 942/1536 to 946/1539, and to a certain Aḥmad Çelebī b. Abī l-Su'ūd, almost certainly Aḥmed Çelebī (d. 970/1563), the son of the famed Ottoman Grand Mufti Ebū l-Su'ūd (d. 982/1574). It is likely that he is identical to Ḥasan b. Ḥusayn al-Tālīshī, a scholar who hailed from the Talish-speaking area in the northern Gilan region. He studied in Tabriz, left for the Ottoman Empire after the Safavid conquest of that city in 906/1501, continued his studies in Istanbul, and then settled in the Hejaz and Cairo for approximately forty years, before returning around the year 957/1550 to Istanbul where he died in 964/1556–7.

Amlashī's handbook of logic, entitled *Takmīl al-manṭiq* (The Completion of Logic), though not especially original or influential, occupies a special place

in the Western study of Arabic logic. A manuscript of the work in the British Library (MS Or. 12405, fols. 72a–104b) was examined by Nicholas Rescher, and its detailed presentation of modal propositions and syllogisms allowed him to flesh out the condensed remarks in the classic, thirteenth handbook *al-Risāla al-Shamsiyya* by Najm al-Dīn al-Kātibī and thus develop his path-breaking presentation and interpretation of post-Avicennan modal logic in *The Theory of Modal Syllogistic in Medieval Arabic Philosophy* (Rescher 1974). The British Library manuscript did not name the author, and Rescher mistakenly attributed it to the copyist, Meḥmed Sādiq b. Feyẓullāh b. Meḥmed Emīn Şīrvānī, whom he assumed was a Persian scholar of the fifteenth century but was actually an eminent Ottoman scholar who died in 1120/1708. This Ottoman scholar made at least two copies of *Takmīl al-manṭiq*, in which he integrated Amlashī's own marginal annotations to the work as a running commentary, thus producing what he called a "commentary" (*sharḥ*) on *Takmīl al-manṭiq*.

Amlashī's works on logic are:

- 1) *Takmīl al-manṭiq* (The Completion of Logic), a manual on logic that was dedicated to Aḥmed Çelebī b. Abī l-Su'ūd, almost certainly the son of the famed Ottoman Grand Mufti Ebū l-Su'ūd. An undated autograph manuscript of the work is extant in the Süleymaniye Library in Istanbul (MS Laleli 2561, fols. 1a–39a). The work covers much the same ground as Kātibī's *al-Risāla al-Shamsiyya*, though the treatment of modal propositions and modal syllogisms is somewhat more expansive. Amlashī listed twenty-two modal propositions, instead of the thirteen listed in Kātibī's handbook and the fifteen in Taftāzānī's *Tahdhīb al-manṭiq*, though the two earlier handbooks and their standard commentaries had presented the additional modal propositions when discussing modal contradiction, conversion and contraposition. As mentioned, *Takmīl al-manṭiq* is not a conspicuously original handbook, but it nevertheless contains interesting departures from the positions expounded in Kātibī's *Shamsiyya* on a number of points. For example, it presents a nominalist position regarding universals (fol. 10b), analyses propositions into four rather than three parts: subject, predicate, nexus, and judgment (fol. 11b–12a), and rejects the view that truth consists in correspondence to extra-mental fact, proposing instead that truth is accordance with what is self-evident or provable (fol. 13a, margin).

- 2) *Ḥall al-Tahdhīb* (Solving the Emendation), a commentary on Taftāzānī's *Tahdhīb al-manṭiq*. It is extant in a water-damaged manuscript in the Süleymaniye Library (MS Laleli 2644, fols. 50a–100a), copied from the autograph in 1065/1654–5.
- 3) A short super-gloss on the gloss of Muḥyī al-Dīn al-Bardā'ī (d. 927/1520–1) on the commentary on Abhari's *Īsāghūjī* by Ḥusām al-Dīn al-Kāfī (d. 760/1359). This is extant in autograph folios bound together with the previously mentioned autograph copy of *Takmil al-manṭiq* (MS Laleli 2561, fols. 40a–47a).

### (xviii) Aḥmed Ṭāşköprüzāde (B. Fleming “Ṭāşköprüzāde” EI2)

He was born in 901/1495 in Bursa and studied there with a number of scholars, including his father Muşṭafā (d. 935/1529), a former tutor to the Ottoman Sultan Selīm I (r. 918/1512–926/1520). He then began teaching in Edirne and Istanbul, followed by spells as a judge in Bursa and Istanbul. He retired from the judgeship of Istanbul in 961/1554 and died in the Ottoman capital in 968/1561.

Ṭāşköprüzāde is now perhaps most known for his biographical dictionary of Ottoman scholars *al-Shaqā'iq al-nu'māniyya fī 'ulamā' al-dawla al-'Uthmāniyya* (Red Anemones concerning the Scholars of the Ottoman State) and his encyclopedia of the sciences *Miftāḥ al-sā'ada wa-mişbāḥ al-siyāda* (The Key to Felicity and the Lamp of Eminence), both written in Arabic. In his time, he was also considered an eminent scholar of the rational sciences who taught philosophical theology, semantics-rhetoric and jurisprudence. His perhaps most widely studied (and copied) work was a short introduction to the discipline of *ādāb al-baḥth*. He also wrote a number of treatises on topics that overlap the fields of philosophical theology and logic. His works include:

- 1) *al-Liwā' al-marfū' fī ḥall mabāḥith al-mawḍū'* (The Raised Flag in Solving the Problems of the Subject Matter), on the subject matter of a science. This was a much discussed topic in the standard handbooks on philosophical theology and logic in Ṭāşköprüzāde's time. (For a detailed description of an extant manuscript copy, see Ahlwardt 1887–99, nr. 5205.)
- 2) *Faḥḥ al-amr al-mughlaq fī mas'alat al-majhūl al-muṭlaq* (Opening the Thwarted Injunction concerning the Issue of the Completely Unknown).

On the paradox of what is not conceived in any way. The “paradox” arises from the generally agreed principle that conception is a precondition for judgment, i.e., that what is not conceived in any way cannot be the subject of a judgment. The problem is that the principle “What is not conceived in any way cannot be judged” seems precisely to be a judgment about what is not conceived in any way, and hence seems to be self-refuting (on this problem, see Lameer 2014). Two extant manuscripts of this treatise are: Bayezıt Devlet Kütüphanesi, Istanbul: MS Veliyüddin 3238, fols. 96–100, and Süleymaniye Kütüphanesi, Istanbul: MS Bağdathı Vehbi 2196, fols. 119–127.

- 3) *Ghāyat al-tahqīq wa-nihāyat al-tadqīq fī taqṣīm al-‘ilm ilā l-taşawwur wa-l-taşdīq* (The Ultimate Verification and the Utmost Exactitude in Dividing Knowledge into Conception and Assent). On the division of knowledge into conception and assent, a topic intensively discussed by Eastern Islamic theologians and logicians after the fourteenth century. An extant manuscript is in the Bayezıt Devlet Kütüphanesi in Istanbul (Veliyüddin 3238, fols. 163–167).
- 4) *al-Qawā‘id al-jaliyyāt fī mabāḥith al-kullīyyāt* (The Clear Principles concerning the Discussions of Universals) or, according to some manuscripts, *Qawā‘id al-ḥamliyyāt fī mabāḥith al-kullīyyāt* (The Principles of Categorical Propositions concerning the Discussions of Universals). The problem of universals was regularly discussed by Eastern Islamic philosophical theologians and logicians. Tāşköprüzāde’s treatise is a defense of realism against the attack of Quṭb al-Dīn al-Rāzī al-Taḥṭānī. The treatise has been edited with a facing-page Turkish translation in the fourth volume of his collected works (*Tāşköprüzāde Külliyyatı 4: Felsefe Risaleleri*, edited by K. Şenel, C. Şenel & M. Z. Tiryaki [Istanbul: Istanbul Medeniyet Üniversitesi Yayınları 2016], pp. 117–163).
- 5) A treatise on *ādāb al-baḥth*, plus a commentary. This is a short handbook on *ādāb al-baḥth*, to which Tāşköprüzāde wrote his own relatively short commentary. It was based on Samarqandī’s treatise but left out Samarqandī’s intricate examples of dialectical exchanges in theology and jurisprudence. The handbook was widely used as an introduction to *ādāb al-baḥth* in Ottoman Turkish colleges until the nineteenth century, and it elicited numerous glosses by later Ottoman scholars (Mach 1977, 3375–3383. It was lithographed in Istanbul in 1313/1895 in thirteen pages.

**(xix) Mīr Abū l-Faṭḥ b. Makhdūm Ḥusaynī ‘Arabshāhī (Afandī  
1403/1982–3, V, 486–487, 492; Qummī 1980, 562, 993; Rūmlū  
1384/2005, III, 1465; Dānishāmuz 1988, VI, 100)**

Mīr Abū l-Faṭḥ reportedly studied with ‘Iṣām al-Dīn Isfarāyīnī in Transoxania. Whereas his teacher had abandoned the realm of the Shiite Safavids for that of the Sunni Uzbeks, Mīr Abū l-Faṭḥ followed the opposite path. He appears to have been in Mashhad when the Safavids reconquered it from the Uzbeks in 934/1528. Despite some early suspicion of his sectarian allegiance, he became attached for a number of years to the court of Shah Ṭāhmāsp I in Qazwin, and dedicated to the Shah an influential commentary on a Shiite creedal work by Ibn al-Muṭahhar al-Ḥillī. Some of his later works on logic are dedicated to the vassal ruler of Gilan, Khān Aḥmad II (r. 944/1538–1000/1592). He died in Ardebil in 976/1568–69.

Though little remembered today, Mīr Abū l-Faṭḥ was one of the most influential Eastern Islamic logicians of the sixteenth century. Many of his works continued to be studied in later centuries; curiously they appear to have been more popular in the Ottoman Empire and Mughal India than in Iran. This may have been due to the fact that the handbooks he glossed came to be more widely used in the two former regions. Dawānī’s commentary on *Tahdhīb al-manṭiq*, for example, was a standard handbook in Ottoman Turkey and Mughal India but seems to have dropped out of the curriculum of Safavid colleges in the seventeenth century, being replaced by the complete but less probing and demanding commentary of Mullā ‘Abdullāh Yazdī.

Mīr Abū l-Faṭḥ’s works on logic include:

- 1) A gloss on Dawānī’s commentary on *Tahdhīb al-manṭiq*, dedicated to Khān Aḥmad II of Gilan. Though not hostile, Mīr Abū l-Faṭḥ on several occasions expressed reservations about Dawānī’s positions. His gloss was regularly studied in Ottoman madrasas and elicited numerous super-glosses by later Ottoman scholars (Mach 1977, nrs. 3237–3243). It was printed in Istanbul in 1305/1887 in 152 pages, followed by Dawānī’s commentary (52 pp.) and Taftāzānī’s handbook (8 pp.). In Mughal India, it was eventually supplanted by the gloss of Mīr Zāhid Harawī (d. 1101/1689–90), but it retained a measure of influence insofar as Mīr Zāhid discussed the views of earlier glossators.

- 2) A continuation (*Takmila*) of Dawānī's incomplete commentary, completed in 972/1564 (Mach 1977, nr. 3236; 'Arshī 1971–, IV, 332–33; Khuda Bakhsh 1963–, XXI, nr. 2283). Of particular influence was his discussion of *dābitat al-Tahdhīb* in which he criticized Taftāzānī's claim to have captured the conditions of productivity across all four syllogistic figures. The discussion was lithographed in India in a miscellany entitled *Majmū'a-yi bīst-i rasā'il-i manṭiq* (Cawnpore, 1329/1912), pp. 3–5.
- 3) A gloss on a commentary by Mullā Muḥammad Ḥanafī (fl. 922/1516) – another scholar from Herat who had fled to Uzbek Bukhara – on a short treatise on *ādāb al-baḥth* by 'Aḍud al-Dīn al-Ījī. This gloss was apparently completed in Mashhad in 935/1528–29 (Mach 1977, nr. 3349). It came to be widely studied in Ottoman circles from the seventeenth century, and elicited numerous super-glosses (Mach 1977, nrs. 3350–3362).
- 4) An extensive gloss, in Persian, on 'Iṣām al-Dīn Isfārāyīnī's commentary on Jurjānī's *Kubrā*. It was completed in 960/1553. An early, extant manuscript consists of 81 folios, with 21 lines per page (MS Mar'ashī Najafī 4088).
- 5) A short gloss on Jurjānī's gloss on *Sharḥ al-Shamsiyya*, completed in 953/1546, specifically discussing the question of whether it is possible to acquire new concepts from previously known concepts (MS Mar'ashī Najafī 957, fols. 126–130).
- 6) A gloss on Jurjānī's gloss on Quṭb al-Dīn al-Rāzī's commentary on Urmawī's *Maḥāli*, completed in 955/1548, specifically discussing the paradox of “what is not conceived in any way” (*al-majhūl al-muṭlaq*) (MS Mar'ashī Najafī 957, fols. 88b–113a).
- 7) A short treatise on the ten categories, completed in 956/1549. (For an extant manuscript copy, see MS Mar'ashī Najafī 957, fols. 115b–119b.)

**(xx) Mullā 'Abdullāh Yazdī (Tihirānī 1971–, VII, 135; Khwānsārī 1391/1971–2, IV, 228–230; Afandī 1403/1982–3, III, 191–194)**

Mullā 'Abdullāh b. Ḥusayn Yazdī was a student of Dawānī's student Jamāl al-Dīn Maḥmūd Shīrāzī (d. 962/1554–5). He may also have studied with Ghiyāth al-Dīn Dashtakī, for in 962/1555 he was teaching at the Manṣūriyya madrasa

in Shiraz that had been founded by Ghiyāth al-Dīn's father Ṣadr al-Dīn Dashtakī. He was an esteemed teacher and counted among his students the eminent Safavid polymath Bahā' al-Dīn 'Āmilī (d. 1030/1621). According to a contemporary source (Rūmlū 1384/2005, 1487), he died in 981/1573–4 in the province of 'Arabistān (modern-day Khuzistan), possibly while on pilgrimage to the Shiite shrine cities of Iraq. A later source states that he died in Isfahan in 1015/1606–7 (Muḥibbī 1284/1868–9, IV, 40), but this appears to be due to a confusion of Yazdī with the prominent religious scholar Mullā 'Abdullāh b. Ḥusayn Tustarī who died in Isfahan in 1021/1612 (Tīhrānī 1971–, VIII, 343–346). Yazdī's extant logical works are:

- 1) A gloss on Taftāzānī's *Tahdhīb al-manṭiq*, completed in 967/1560. Formally, it was a "gloss" (*ḥāshiyā*) rather than a "commentary" (*sharḥ*), for it did not quote the entirety of Taftāzānī's handbook, but rather cited the first few words of a statement and then expounded and discussed it. Often referred to simply as "the Gloss of Mullā 'Abdullāh" (*ḥāshiyat Mullā 'Abdullāh*), it came to be a standard intermediate handbook in Iranian scholarly circles in Safavid and Qajar times. As such, it elicited dozens of glosses by later scholars, and was lithographed or printed on numerous occasions in the nineteenth and twentieth centuries. A Tehran lithograph from 1314/1896 that includes extensive marginal annotations by later scholars comprises 102 pages. Of these, around a third (pp. 1–35) is devoted to preliminary matters and conceptions, and around a third to immediate implications and the formal syllogism (pp. 50–83). A relatively large proportion (18%) is taken up with induction, analogy, the matter of the syllogism, and the concluding discussion of the subject matter, principles and issues of a science (pp. 83–102).
- 2) A Persian commentary on *Tahdhīb al-manṭiq* (Tīhrānī 1936–, XIII, 161–162, nr. 546). Two extant manuscripts of the work are: Ayatollah Mar'ashī Najafī Library, Qom: MS nr. 10609 (69 folios, various lines per page, copied in 985/1577) and Haẓrat-i Ma'sūma Library, Qom, MS nr. 477 (133 folios, 19 lines per page, copied in 1053/1643).
- 3) A gloss, entitled *al-Kharrāra* (The Ripple), on the commentary of Dawānī on *Tahdhīb al-manṭiq*. An extant manuscript, copied during the lifetime of the author, is in the Ayatollah Mar'ashī Najafī library in Qom (nr. 11262/5, fols. 96–165, 21 lines per page, copied in 975/1567–8).

- 4) A gloss on the discussion of the subject matter (*mawḍūʿ*) of a science in the early parts of Dawānī's commentary on *Tahdhīb al-manṭiq*. An early extant manuscript is in the Ayatollah Mar'ashī Najafī library in Qom (nr. 11262/6, fols. 168–180, 21 lines per page, copied in 975/1567–8).
- 5) An extensive commentary on the passage in Taftāzānī's *Tahdhīb al-manṭiq* presenting the *ḍābiḥa*, i.e., the general conditions of productivity in terms of "subject generality". This appears to have been written during the lifetime of his teacher Jamāl al-Dīn Maḥmūd Shīrāzī, i.e., before his commentary on the entire *Tahdhīb al-manṭiq*. It has been printed in the appendix to a recent edition of Yazdī's commentary on *Tahdhīb al-manṭiq*, edited by ʿAbd al-Ḥamīd al-Turkmānī (Amman: Dār al-Nūr, 2018), pp. 401–424.
- 6) Some sources also attribute to Yazdī a gloss on the "older" gloss by Dawānī on Jurjānī's gloss on *Sharḥ Maṭālī ʿal-anwār*, as well as a gloss on Dawānī's gloss on Jurjānī's gloss on *Sharḥ al-Shamsiyya*. It is not clear whether these glosses are extant.

**(xxi) Mīr Fakhr al-Dīn Muḥammad b. Ḥusayn Sammākī Astarābādī (Tihirānī 1971–, VII, 179–180; Rūmlū 1384/2005, III, 1533–4)**

He studied in Shiraz, primarily with Ghiyāth al-Dīn Dashtakī, and later became attached to the court of Shah Ṭāhmāsp I, to whom he dedicated a number of works. Apart from the logical works listed below, he also wrote an esteemed gloss on the commentary by Qāḍī Mīr Ḥusayn al-Maybudī (d. 909/1504) on Abhari's *Hidāyat al-ḥikma*, covering the section of the commentary dealing with natural philosophy. He died in 984/1577.

His works on logic are:

- 1) A gloss on Dawānī's commentary on *Tahdhīb al-manṭiq* (Tehran, Kitāb-khāneh-i Markazī Dānishgāh-i Tihirān: MS Mishkāt 1224, fols. 3a–87b). This was one of several esteemed glosses written on Dawānī's commentary in sixteenth-century Persia – the glosses of his contemporaries Mīr Abū l-Faṭḥ and Mullā ʿAbdullāh Yazdī have already been mentioned. Judging from the tone of this work, the hatred that Ghiyāth al-Dīn



Dashtakī harbored toward Dawānī was not necessarily transferred to his students. Fakhr al-Dīn was not uncritical, but not consistently hostile either, and in his introduction he praised Dawānī's work. One problem that he raised in this gloss (fol. 59b–60a) came to be intensely discussed in later centuries: Dawānī had defended the view that conception can attach itself to anything that assent attaches to, but not vice versa. He had also defended the view that knowledge (*ʿilm*) and the known (*maʿlūm*) are identical in essence (*muttaḥidān dhātān*). On this account, what is known is the form of an entity, and knowledge is that very form in the mind – Dawānī explicitly rejected the view that what is in the mind is merely the image or likeness (*shabāḥ* or *mithāl*) of the thing rather than the form or essence itself. Fakhr al-Dīn pointed out that if knowledge and the known are identical in essence, then conception (a subtype of knowledge) is identical to what is known by conception, and assent (another subtype of knowledge) is identical to what is known by assent. But if what is known by conception can be the same as what is known by assent then the implication would be that conception can be identical to assent. (Schematically put: Conception = object of conception = object of assent = assent.) Such a view undermines the standard division of knowledge into conception and assent. After all, if conception can attach itself to anything that assent attaches to, but not vice versa, and if knowledge and the known are identical, then this implies that assent is simply a subtype of conception, and it seems ridiculous to divide knowledge into conception and its subtype.

- 2) A treatise on dialectic (*munāẓara*), completed in 958/1551 (MS: Āstāne-yi Quds-i Riẓawī 1131). This presents the basics of *ādāb al-baḥṭh*, but unusually goes on to present more than a dozen sophisms (*mughālaṭāt*), including the liar paradox, and their solutions. Fakhr al-Dīn's solution to the liar paradox is simply to deny bivalence, i.e., the principle that every proposition is either true or false. The definition of a proposition (*qaḍīyya*) is a complete statement that may be true or false. However, this does not imply that every proposition is actually true or false, merely that a proposition considered in abstraction from its specific matter (*khuṣūṣīyyat al-mādda*) is true or false. This solution appears to be derived from the thirteenth-century Jewish philosopher Ibn Kam-mūna whose view on the liar paradox, expressed in correspondence

with his contemporary Najm al-Dīn al-Kātibī, had been presented and discussed in the abovementioned treatises of Ṣadr al-Dīn al-Dashtakī and Dawānī (Qaramaleki 2007, 35–37, 119–124).

### (xxii) Mīrzā Jān Bāghnawī (R. Pourjavady EI3)

Mīrzā Jān Ḥabībullāh Bāghnawī was born around the year 930/1524 and studied in Shiraz with Dawānī's student Jamāl al-Dīn Maḥmūd Shīrāzī (d. 962/1554–5). He went on to teach in Shiraz for some twenty years after his teacher's death. During the short reign of the Safavid Shah Ismā'īl II (r. 984/1576–985/1578), who stopped the persecution of Sunnis in Persia, Mīrzā Jān became associated with the court and openly declared his Sunnism. When the Shah was assassinated, Mīrzā Jān's position in Safavid Persia became untenable, and he left for Uzbek Central Asia. He died in Bukhara in 995/1587.

Though little remembered today, Mīrzā Jān's writings were very influential in Ottoman Turkey, Persia, Central Asia and India down to the nineteenth century. His gloss on Quṭb al-Dīn al-Rāzī's gloss on Ṭūsī's commentary on Avicenna's *Ishārāt* (covering the physics and metaphysics only) was printed in Istanbul in 1290/1873. His gloss on Ibn Mubārakshāh's commentary on Kātibī's *Ḥikmat al-ʿayn* was printed in Kazan in 1321–2/1902–3. He also wrote a super-gloss on the section on general metaphysics from Qūshjī's commentary on Ṭūsī's *Tajrīd* and Dawānī's first set of glosses thereon. This super-gloss survives in numerous manuscript copies in Iran and Turkey, attesting to its widespread use. Mīrzā Jān's works were referenced and discussed by later Ottoman scholars such as Kara Ḥalīl Tīrevī (d. 1123/1711), Safavid scholars such as Āqā Ḥusayn Khwānsārī (d. 1098/1687) and Mullā Mīrzā Shirwānī (d. 1098/1687), and Mughal scholars such as Mir Zāhid Harawī (d. 1101/1689–90) and Qāzī Mubārak Gūpāmawī (d. 1162/1749).

The super-gloss on Qūshjī's commentary gave a summation of some of the main points discussed by Dawānī and Dashtakī in their glosses and counter-glosses on Qūshjī's commentary, including the disputed points of logic. For example, he gave a summary account of Dawānī's views on relational syllogisms (El-Rouayheb 2010, 104–107). Mīrzā Jān's straightforwardly logical works were:

- 1) A super-gloss on the gloss of al-Sayyid al-Sharīf al-Jurjānī on the early parts of Quṭb al-Dīn al-Rāzī's commentary on Urmawī's *Maṭāliʿ al-an-*

*wār*, covering the preamble, the division of knowledge into conception and assent, the subject matter of logic, and the paradox of “what is not conceived in any way” (*al-majhūl al-muṭlaq*). This appears to have been an influential work and was still cited and discussed by Safavid, Mughal and Ottoman logicians in the seventeenth and eighteenth centuries. (For extant manuscripts, see Mach 1977, nr. 3228; Khuda Bakhsh 1963–, XXI, nr. 2262, fols. 1–127.)

- 2) A gloss on the part of Quṭb al-Dīn al-Rāzī’s commentary on Urmawī’s *Maṭāli‘ al-anwār* dealing with “assents” (*taṣdīqāt*). Almost all glosses on Quṭb al-Dīn al-Rāzī’s commentary confined themselves to the early parts of the work that had been glossed by Jurjānī. Unusually, Mīrzā Jān supplemented his gloss on that much discussed early part with a gloss – albeit a relatively short one – on the parts dealing with categorical, modal and hypothetical propositions. However, his gloss does not cover the commentary’s discussion of conversion, contraposition, the immediate implications of hypotheticals, or the categorical, modal and hypothetical syllogisms (Mach 1977, nr. 3232; Khuda Bakhsh 1963–, XXI, nr. 2262, fols. 128–203).
- 3) A treatise on sophisms (*mughālaṭāt*), dedicated to the vassal ruler of Gilan, Khān Aḥmad II, the abovementioned dedicatee of Mīr Abū l-Faḥr’s gloss on Dawānī’s commentary on *Tahdhīb al-manṭiq* (Mashhad: Āstāne-yi Quds-i Rażawī, MS 1126 and Qom: Mar’ashī Najafī, MS 10201/4).
- 4) A commentary on the passage in Taftāzānī’s *Tahdhīb al-manṭiq* presenting the *ḍābiṭa*, i.e., the general conditions of productivity in terms of “subject generality”. This has been printed in the appendix to a recent edition of Yazdī’s commentary on *Tahdhīb al-manṭiq*, edited by ‘Abd al-Ḥamīd al-Turkmānī (Amman: Dār al-Nūr, 2018), pp. 395–400.
- 5) An extant manuscript of a handbook of logic entitled *Baḥr al-manṭiq* (The Sea of Logic), copied in India but later making its way into a Turkish library (Manisa İl Halk Kütüphanesi, MS 2203/6, fols. 38b–46b), has been misattributed to Mīrzā Jān. The work is actually by a much later namesake, the Indo-Muslim scholar Ḥabībullāh Qannawjī (d. 1140/1727). (For two other copies of *Baḥr al-manṭiq*, with the correct attribution, see ‘Arshī 1971, IV, pp. 406–407.)



Das Signet des Schwabe Verlags ist die Druckermarkte der 1488 in Basel gegründeten Offizin Petri, des Ursprungs des heutigen Verlagshauses. Das Signet verweist auf die Anfänge des Buchdrucks und stammt aus dem Umkreis von Hans Holbein. Es illustriert die Bibelstelle Jeremia 23,29: «Ist mein Wort nicht wie Feuer, spricht der Herr, und wie ein Hammer, der Felsen zerschmeisst?»

# Medieval and Early Modern Philosophy

Julia Jorati/Dominik Perler/Stephan Schmid (eds.)

## THE DEVELOPMENT OF ARABIC LOGIC (1200–1800)

Recent years have seen a dramatic change in scholarly views of the later career of Arabic and Islamic philosophy. For much of the twentieth century, researchers tended to dismiss the value of Arabic writings on philosophy and logic after the twelfth century, often on the basis of the prejudice that handbooks, commentaries and glosses are of necessity pedantic and unoriginal. This assumption has now been abandoned. As a consequence, a vast amount of later Arabic writings on philosophy and logic, hitherto neglected, are now being studied and edited. The present work is an attempt at giving an overview of the development of Arabic logic from 1200 to 1800, identifying major themes, figures and works in this period, while taking into account regional differences within the Islamic world. It offers a corrective to Nicholas Rescher's seminal but now outdated *The Development of Arabic Logic*, published in 1964.

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