FOUNDATIONS OF SCIENCE IN THE POST-CLASSICAL ISLAMIC ERA:

THE PHILOSOPHICAL, HISTORICAL, AND HISTORIOGRAPHICAL SIGNIFICANCE OF SAYYID AL-SHARĪF AL-JURJĀNĪ’S (D. 1413) PROJECT

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by
Moiz Hasan

Robert Goulding, Co-Director
F. Jamil Ragep, Co-Director

Graduate Program in History and Philosophy of Science
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Abstract

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This dissertation examines the foundations of scientific knowledge, and its philosophical, historical, and historiographical significance, in the relatively understudied post-classical Islamic era (post-1100 CE). By focusing on the epistemological underpinnings of science, such a study can reveal much about the nature, attainability, and justifiability of scientific knowledge. Moreover, studying the foundations can shed light on how scientific knowledge is situated in relation to developments in other intellectual fields. Thus, it can prove valuable for addressing significant historical and historiographical questions concerning the cross-fertilizations between different fields and the tenor of intellectual thought in post-classical Islamic societies.

My work addresses these themes by providing the first book-length treatment of the views of Sayyid al-Sharīf al-Jurjānī (d. 816/1413), one of the most distinguished
theologians of Islam, who was equally acclaimed for his scientific and religious works, and who was centrally interested in issues concerning the foundations of scientific knowledge. This study details Jurjānī’s vision of the mathematical sciences, including astronomy, and its epistemological underpinnings. It shows how Jurjānī’s methodical thinking draws from intellectual sources as diverse as theology, philosophy, jurisprudence, and Sufism, the extent and nature of cross-fertilizations between these traditions, and the manner in which Jurjānī can combine different approaches to knowledge into a coherent epistemological scheme.

Of significant philosophical import is the contribution Jurjānī makes in resolving two problems in the philosophy of science of his time: the status of mathematical entities, and that of astronomical models and their relation to reality. This study demonstrates that Jurjānī’s solution lies in the specific manner he addresses epistemological issues concerning knowledge, truth, and reality, its distinctive feature being a turning away from the Avicennian theory of true knowledge based on the Active Intellect to a more “economical, human-centered epistemology”¹ built on his novel understanding of the key concept of nafs al'amr (lit., the thing itself). Finally, equally significant is the historiographical import of Jurjānī’s project in the form of providing specific evidence that cut through many of the prevalent grand narratives that often

belittle philosophical activity in the post-classical Islamic era, or posit essentialist (often antagonistic) relation between Islam and science.
in honor of my parents,

in gratitude to my wife
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The final spot is for my wife, who has truly been an exemplary model of limitless sacrifice, the coolness of my eyes, and a constant source of comfort and strength for me - you are the color of my life.
NOTE ON TRANSLITERATION AND DATING

For Arabic and Persian transliteration, I follow the *International Journal of Middle Eastern Studies* style, with the following modifications: for tāʾ marbūṭā endings, I omit the final “h”; when an Arabic proper name is shortened to just the surname, or the full name of an Arabic treatise is shortened to a single word, the initial definite article is omitted (e.g., Jurjānī not al-Jurjānī, and *Mawāqif* not *al-Mawāqif*); when one of the conjunctions or prepositions is followed by *al*, both the *a* and the hyphen are elided, and replaced by an apostrophe, forming a contraction rendered as *waʾl*, *biʾl*, and *liʾl* (e.g., *waʾl-amr* and *liʾl-wāqiʿ*).

For dating pre-modern figures and events, I have sought to provide both AH (after the Hijra) and CE (common era) dates, and in that order (e.g., 816 AH/1413 CE); References to a single date (e.g., the “fourteenth” century) are to the common era.
Science is widely recognized as one of the greatest intellectual and cultural achievements in human history. Less familiar, though of comparable significance, are the foundations on which it stands – for instance, the assumptions and underlying concepts of science, the notions of proofs and methods of reasoning, and the definitions of its value and scope. Accordingly, this study is not directly about science, as a kind of finished product. It is about the philosophizing involved in science. Specifically, it is about the vision, attainability, and reliability of scientific knowledge in pre-modern Islamic societies.

Arguably, there can be great benefit in studying the foundations of scientific knowledge, especially in pre-modern societies\(^1\) where other cultural and intellectual

\(^1\) It is worth mentioning that several studies have now importantly shown that the distant past continues to influence the present in a rather substantial way. In a recent study, Brad Gregory has forcefully argued that the “modern Western world is an extraordinarily complex, tangled product of retentions, rejections, and transformations of medieval Western Christianity, in which the Reformation era was the critical watershed.” In a work presented to be “as much about the present as the past,” he identifies the “unintended consequences of the Reformation for the modern condition”: a “hyperpluralism of beliefs;” “intellectual disagreements that splinter into fractals of specialized discourse;” “the absence of a substantive common good;” and “the triumph of capitalism’s driver, consumerism.” See Brad Gregory, *The Unintended Reformation: How a Religious Revolution Secularized Society* (Harvard: Harvard University Press, 2012). Gregory also draws attention, correctly, to two similar, important works that reveal the substantial influence of the distant past. In a path-breaking study on moral theory, Alasdair MacIntyre showed that “getting rid of the Aristotelian virtue ethics by Enlightenment thinkers, along with rightly discredited Aristotelian natural philosophy, relativized the
forces, such as religion and philosophy, exert a strong influence. Apart from shedding light on the nature of scientific knowledge itself, such a study can also be used to address broader questions that touch on philosophical, historical, and historiographical issues. How did scholars justify that the knowledge attained is true and describes reality? What intellectual traditions inform their epistemological concerns? For someone writing about their thought, what would it mean to “see things their way”? 

moral realm creating a perpetual standoff among consequentialists, deontologists, contractarians, pragmatists, natural law theorists, analytical moral philosophers ... and led to the culture wars that marked the US since the 1980s” (quoted in Gregory). See A. MacIntyre, *After Virtue: A Study in Moral Theory* (New York: Bloomsbury, 2013, original 1981). Similarly, Amos Funkenstein uncovered a connection between “late medieval metaphysics and contemporary neo-Darwinian atheism,” and argued that “the metaphysical and epistemological assumptions of modern science and anti-religious scientific ideologies are indebted to the metaphysical univocity and nominalism that he identified in the medieval tradition of John Scotus and Ockham” (quoted in Gregory). See A. Funkenstein, *Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century* (Princeton: Princeton University Press, 1986).


Quentin Skinner used this phrase as the title of the introduction to the first volume of his collected essays as a call to intellectual historians to consider responsibly the “contexts as well as the texts of the author,” in order to “see things their way.” See Q. Skinner, *Visions of Politics*, vol. 1 *Regarding Method* (Cambridge: Cambridge University Press, 2002), 1-7 (“Introduction: Seeing things their way”). Recently, the phrase is taken over as the title to a volume of essays that “explores and applies in the field of religious thought the methodology of intellectual history pioneered by Skinner.” See *Seeing Things Their Way: Intellectual History and the Return of Religion*, eds. Alister Chapman, John Coffey, and Brad
1.1 Project Overview

This dissertation examines the foundations of scientific knowledge and its philosophical, historical, and historiographical significance in the case of Sayyid al-Sharīf al-Jurjānī (d. 816/1413), a highly distinguished theologian and enormously influential polymath of Islam, who was equally acclaimed for his scientific and religious works.

Gregory (Notre Dame: University of Notre Dame, 2009) (quote from Richard Rex’s review on the back cover). As the Introduction explains, the contributors urge intellectual historians to “explore seriously the religious dimensions of the ideas,” by according them the “same respect,” and studying them in the “same manner, as scientific or political thought.” It advocates that “the religious ideas (like political, philosophical, or scientific ideas) need to be understood first and foremost in their own terms – not in terms of some competing set of religious ideas, nor in terms of some anachronistic standpoint,” nor even in terms of materialistic or reductionist theories (e.g., economic interests, repressed sexuality, the need for communal integration). See John Coffey and Alister Chapman, “Introduction: Intellectual History and the Return of Religion,” 1-23. The specific challenge presented by reductionist theories of religion is explored by Brad Gregory, “Can We ‘See Things Their Way’? Should We Try?” 24-45, who urges that “seeing their way” does not imply that “we appropriate or condone their beliefs, nor does it imply the truth and falsity of their beliefs;” the objective is to “understand and present their ideas in such a way that they would recognize them as their own.”


5 In a brief, introductory note, a distinguished historian of science draws attention to Jurjānī’s achievements in the following manner: “A highly distinguished and enormously influential polymath who lived in an age of many distinguished polyhistors, ʿAlī ibn Muhammad, known as al-Sayyid al-Sharīf al-Jurjānī, wrote substantial commentaries in fields as wide apart as Aristotelian logic, kalām and astronomy, as well as large number of introductions, handbooks, dictionaries and treatises of variable length on subjects that were staple food for the extensive and obviously flourishing school industry of his time: jurisprudence, traditions, language, grammar and rhetoric, logic, disputation, including Sufism and some falsafa problems...His extant writings are noted for their remarkable clarity, which must account in part for their success, and they are marked by intelligence and depth as well as breadth and learning.” See A. I. Sabra, “Science and Philosophy in Medieval Islamic Theology: The Evidence of Fourteenth Century,” Zeitschrift für Geschichte der Arabisch-Islamischen Wissenschaften 9 (1994): 1-42, 14, n. 16.
Strictly speaking, Jurjānī was not a practicing scientist, as understood today. However, from early to late, he was deeply and centrally interested in issues concerning the foundations of scientific knowledge, discussing them in several of his scientific and non-scientific writings. This interest, importantly, led him to some distinctively novel, profound, and decidedly influential ideas, addressing key issues concerning the attainability of knowledge, truth, and reality.

The philosophical significance of these epistemological ideas occurs in the form of the central, leading role they play in Jurjānī’s vision of scientific knowledge, particularly of the mathematical sciences, including astronomy. This is most clearly observed in the manner Jurjānī understands and attempts to resolve two specific – rather enduring – issues in the philosophy of science of his time: the status of mathematical entities, and the status of astronomical models and their relation to reality. As such, studying the epistemological underpinnings, in this particular case, can

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6 However, that does not mean he did not possess a firm grasp on the science of his time. As a case in point (which will be detailed more fully in this study), Jurjānī’s grasp of astronomy at the highest theoretical level is evident in the form of the formidable commentaries he wrote on the significant astronomical works of his time.


8 On the status of astronomical hypotheses, there is a brief remark Jurjānī offers defending the “reality” of the astronomical hypotheses in one of his theological-philosophical works, a remark which has come to form perhaps the most celebrated and well-known piece of information one knows about Jurjānī. Yet, it is surprising that there have been no serious attempts at analyzing the arguments embedded in the passage or, indeed, understanding it in the context of his fuller philosophical-theological and astronomical writings – a lacuna which this study aims to fill. For Jurjānī’s remark in existing scholarship, see A. I. Sabra, “Science and Philosophy in Medieval Islamic Theology: The Evidence of Fourteenth Century,” Zeitschrift für Geschichte der Arabisch-Islamischen Wissenschaften 9 (1994): 1-42; Robert Morrison, “What Was the Purpose of Astronomy in Ījī’s Kitāb al-Mawāqif fī ‘ilm al-kalām?” in Politics, Patronage and the
reveal much about the tenor of mathematical and astronomical thought in this relatively understudied post-classical period of Islamic intellectual history.

The historical importance of the epistemological project arises, in part, from the observation that many of the ideas inevitably draw, in varying degrees, from different intellectual currents of the time: theology, philosophy, jurisprudence, and Sufism. Indeed, unlike other areas of science (e.g., the technical aspects of specialized sciences where the specialized science itself asserts near exclusive substantive and interpretive authority), epistemological discussions of science involve theorizing, thus lying at the very intersection of different traditions of theorizing. Studying the epistemological foundations of scientific knowledge in this context, then, can convey much about the extent and nature of intersections between various intellectual traditions, and the manner in which different approaches to knowledge can be combined together into a coherent epistemological scheme.

The historiographical import of his epistemological views comes in the form of the specific evidence it provides cutting through many of the grand narratives plaguing the academic field of the history of science, which, to varying degrees, and in various ways, undervalue the Islamic contributions to science and philosophy. 9

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9 For an elaboration of this point, see below section, entitled “Historiographical Context.”
Accordingly, the primary goal of this study is to understand Jurjānī’s vision of the mathematical sciences, including astronomy, and its epistemological underpinnings. Part of the goal includes: (1) to present and assess his particularly novel contributions to the two core issues in the philosophy of science, namely, the status of mathematical objects and astronomical conclusions and their relation to reality; (2) to contextualize the foundations of his scientific thought in relation to other fields, particularly kalām (or, roughly, dialectical theology), falsafa (or, roughly, Hellenized philosophy) and, to a lesser extent, Sufism and Islamic jurisprudence; and (3) to address many of the grand narratives plaguing the field of the history of science in Islamic societies that often belittle philosophical/scientific activity in the post-classical Islamic era, or posit essentialist (often antagonistic) relation between Islam and science.

By way of introduction, I would like to briefly set out the three contexts that guide this study.

1.1.1 Philosophical Context

There is an enduring relevance of mathematics to the study of the natural world. But the observation of how mathematics operates raise some interesting questions about its workings, especially about the kind of objects mathematical entities are, and what accounts for the possibility of applying mathematics to the real world.10 These

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10 For an important work that draws attention to these questions in the specific fifteenth-century Islamic context, see İhsan Fazlıoğlu, “Between Reality and Mentality.” For an introductory and general overview of the historical variations of the basic themes in the philosophy of mathematics, see David Bostock, Philosophy of Mathematics: An Introduction (Wiley Blackwell, 2009), and Stewart Shapiro, Thinking about Mathematics: The Philosophy of Mathematics (Oxford: Oxford University Press, 2000). On
questions are at the heart of a fascinating dispute that divides Jurjānī from his contemporaries who, to varying degrees, are skeptical of the value of the mathematical sciences. In one such memorable exchange, Jurjānī defends the validity of mathematical objects by saying that, though they may be “conjectural” and “imaginary things,” they are, nonetheless, “imagined correctly” and are not like “ruby mountains” or “two-headed men.”

This study shows that far from being a superficial rebuttal, Jurjānī’s defense of the mathematical sciences against the skeptical arguments is, in fact, grounded in his comprehensive re-appraisal of the prevailing theories of truth and reality. Jurjānī accepts the usual and standardized definition of truth-reality as “conformity between a judgment and fact (al-wāqi‘).” But he is acutely concerned in several of his philosophical-theological works with providing a correct interpretation of both the different kinds of judgments and the notion of fact to which a judgment conforms. He

the modern philosophy of mathematics, especially during the twentieth century, see the accessible introduction by Alexander L. George and Daniel Velleman, Philosophies of Mathematics (Wiley Blackwell, 2001).

11See, below, ch. 4, which examines the post-classical skeptical arguments against the mathematical sciences and Jurjānī’s responses.


13 I draw the revisionary tone from the contextual study of Nahyan Fancy who, in a different context (i.e., the discovery of the pulmonary transit of blood), argues that, “far from being a happy guess, Ibn al-Nafīs’s anatomical result is rooted in an extensive re-evaluation of the reigning medical theories.” See N. Fancy, Science and Religion in Mamluk Egypt: Ibn al-Nafīs, Pulmonary Transit and Bodily Resurrection (London, New York: Routledge, 2013).

14 Jurjānī, Mu‘jam al-Ta‘rīfāt, ed. Muḥammad Šiddiq al-Minshāwī (Dubai: Dār al-Faḍīla), 79 (entry on haqq), 113 (entry on ṣidq).
explicitly rejects the then reigning Avicennian theory of truth and reality, according to which true knowledge stood for conformity to the forms in the Active Intellect, the latter being a fundamental postulate whose existence was central to Ibn Sīnā’s metaphysics. Instead, he takes to examining and shoring other comparatively metaphysically deflationary cognitive concepts. The notion most central to his analysis is that of *nafs al-amr* (*lit.*, the thing itself), which he uniquely reinterprets and employs to develop a sophisticated and, what would later become, a rather influential scheme to resolve various metaphysical issues concerning the nature of truth and reality. Additionally, it is this framework which directly leads him towards a solution to the contentious philosophical problem of his time of what accounts for the possibility of applying mathematics to the real world. As such, it allows him to place confidence in astronomical and mathematical judgments and supply ontological value to mathematical objects.

To be sure, the development among the post-classical, mathematically-inclined Islamic scholars of an increasing rejection of the Active Intellect theory in favor of an alternate epistemology relying on human cognitive capacities has recently been argued most significantly by İhsan Fazlıoğlu in his pioneering article, “Between Reality and

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Mentality.” Providing an overview of the developments until the fifteenth-century, the author draws attention to the centrality of the concept of nafs al-amr in the alternate epistemology, and the concept’s role in providing a solution to some of the ontological and epistemological issues concerning the mathematical sciences of the period. By focusing on Jurjānī, my work, among other things, serves to flesh out these themes more concretely, comprehensively, and forcefully by undertaking a fine-grained philosophical analysis as well as a contextualization of his epistemological and scientific views.

The second philosophical question he importantly addresses is the relation of theoretical astronomy to the natural world. The issue is often posed in terms of whether astronomical hypotheses describe the real world or are simply devices used for the prediction and regulation of motions and positions of the heavenly bodies, without themselves being either true or false. This study shows that Jurjānī is an astronomical

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realist and though he does offer some examples of astronomy demonstratively
describing the real world, the more typical standard of astronomical knowledge, he sets
up, is not that of apodictic certainty, but rather conclusions that can ‘save the
phenomena’ and are consistent with certain principles of Aristotelian physics.  
Similar to the case of mathematical objects, the respectability accorded to the astronomical
hypotheses is again rooted in Jurjānī’s epistemological views about “knowing” and
knowledge in general, as presented in his kalām works, according to which knowledge is
not strictly delimited to demonstrations but can include beliefs which admit doubt, into
which are lumped “probable, plausible, and commonly accepted beliefs.”  
Another related aspect of his epistemological views argued in his kalām work is the reliability of
sense perceptions in leading towards the definitive knowledge of nature. Far from being
clear cut positions, both of Jurjānī’s views arise as a result of his engagement with post-
Avicennian debates about issues of certainty and doubt and the role of sense
perceptions.

Both philosophical issues are of considerable intrinsic importance and are
examined in the course of this work. However, the two mentioned examples can be
utilized here to anticipate one of the important conclusions of this study: the solutions

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18 Nicholas Jardine, “The Forging of Modern Realism: Clavius and Kepler Against the Skeptics,”
Studies in History and Philosophy of Science 10 (1979): 141-173, 168 (the author makes a somewhat
similar point in the context of Keplerian astronomy).

19 N. Jardine uses this phrase to refer to opinio, as a category which is distinguished from scientia
(meaning, certain apprehension of truth), in the context of Philipp Melanchthon’s views on the
attainability of knowledge. See Ibid., 148.
to key foundational scientific problems, for Jurjānī, are grounded in his epistemological ideas that are elaborated in his kalām works. Moreover, these are ideas which themselves arise as a result of his comprehensive re-appraisal of the then prevalent philosophical-theological views concerning truth, reality, and the attainability of knowledge.20

1.1.2 Historical Context

An important objective of this study is to situate Jurjānī’s scientific thought in relation to other strands of thinking in the web of his fuller intellectual thought. From early to late, there are some key fields of learning that play a prominent, leading role in his ideas about the vision of scientific knowledge and its attendant epistemology. I would like to briefly introduce those fields here shaping Jurjānī’s context.

One of the most decisive strands in Jurjānī’s general philosophical and epistemological thinking is that of the post-classical tradition of Sunnī kalām, understanding whose distinctive character requires some historical background. Although the aim of kalām (or ʿilm al-kalām) – the closest Islamic equivalent of theology – was primarily to reflect on the meaning and implications of the Islamic revelation, this

20 See Nahyan Fancy, Science and Religion in Mamluk Egypt, who makes a similar point that Ibn al-Nafīs’s discovery of the pulmonary transit, “far from being a happy guess, is rooted in an extensive re-evaluation of the reigning medical theories.” Moreover, it shows that this re-evaluation is itself a result of “Ibn al-Nafīs’s engagement with post-Avicennian debates on the relationship between reason and revelation, and the rationality of traditionalist beliefs, such as bodily resurrection.” As Fancy rightly points out, by seeking to explain the relationship between sciences and other areas of Islamic intellectual life, and by aiming to understand the significance of the results from within the author’s own context, such studies provide much-needed contributions towards contextualizing the achievements of Islamic authors.
task often led the practitioners of *kalām* (*mutakallimūn*) towards elaborate, epistemological and cosmological inquiries regarding the attainability of knowledge as well as the problem of nature, attributes, and relations between things which constitute the world. This is particularly true of Ashʿarite *kalām*, an early theological school founded by Abū al-Ḥasan al-Ashʿarī (d. 324/935), which sought to argue for the omnipresence of divine causal action in nature, by means of a system of intellectual premises constituting a certain atomistic concept of nature and denial of Aristotelian natural causation.

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Insofar as Ashʿarite kalām was a rational inquiry to account for the relation between man, the world, and God in accordance with the tenets of religious beliefs, it inevitably came with the influx of Greek learning, to be intersected and rivaled by the Hellenistic philosophical tradition of falsafa, initiated by al-Kindī (d. 252/866), and represented later on by al-Fārābī (d. 338/951) and, most importantly, Ibn Sīnā (lat. Avicenna, d. 428/1037). On the one hand, the tradition of falsafa not only substantially borrowed and adapted from late antiquity, but also incorporated theological concerns.

Yet, it decidedly did so on its own “philosophical grounds,” often upholding human...

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reason as the ultimate arbiter over and above revelation,\textsuperscript{26} which served as one of the fundamental disputes with the \textit{mutakallimūn}, leading to heated engagements in the philosophizing between both groups. One of the most famous and influential encounters remains Ghazālī’s \textit{Tahāfut al-falāsifa} (The Incoherence of the Philosophers) which delivers a powerful critique of the \textit{falsafa} tradition, particularly Ibn Sīnā’s metaphysics and psychology.\textsuperscript{27} On the other hand, it was Ibn Sīnā’s philosophical system, in particular, which profoundly affected not only post-Avicennian \textit{falsafa}, which is to be expected, but also informed \textit{kalām},\textsuperscript{28} leading to “a distinction between the early \textit{kalām} tradition (that of the so-called \textit{mutaqaddimūn}), and a later, distinctly ‘new’ \textit{kalām}

\textsuperscript{26} See Carl Sharif El-Tobgui, “Reason, Revelation and the Reconstitution of Rationality: Taqī al-Dīn Ibn Taymiyya’s (d. 728/1328) \textit{Darʾ Taʿāruḍ al-ʿAql wa-l-Naql},” Ph.D. Diss., McGill University, 73-4. The author (citing Majid Fakhry, and Gardet and Anawati) writes that “the topics imported into philosophy from \textit{kalām} are always dealt with on philosophical grounds. That is, theological topics such as angels, the afterlife, prophethood, etc. were reinterpreted by the \textit{falāsifa} and naturalized into their own discipline and worldview, without ‘ever making the slightest real concession’ to Islamic doctrine as derived from revelation. M. Fakhry likewise underscores the reluctance of the \textit{falāsifa} to ‘surrender any aspect of the former [philosophy], or to attribute any mark of privilege or distinction to the latter [Islamic belief] by virtue of its supernatural or divine origin.’ ”

\textsuperscript{27} In the \textit{Tahāfut}, Ghazālī sets out to refute twenty autonomous doctrines of the philosophers, three of which he deems such irreconcilably in conflict with Islamic belief as to brand the philosophers with unbelief (\textit{kufr}). See Ghazālī, \textit{Tahāfut al-Falāsifa} trans. M. Marmura Al-Ghazali’s \textit{The Incoherence of the Philosophers} 2\textsuperscript{nd} ed. (Provo, UT: Brigham Young University Press, 2002). For a succinct discussion of all twenty issues dealt with it in the \textit{Tahāfut}, see Fakhry, \textit{History}, 222-33.

(that of the so-called mutaʾakhkhirūn)” that clearly bears the imprint of critical engagements with the falsafa.29

While modern scholars offer various assessments on the way to characterize this new kalām, the general picture remains fairly clear.30 Ironically, the intellectual challenge of falsafa was, in the end, overcome by the gradual, critical, self-conscious, and self-confident process of rejection of some of its elements and of cooption of others.


into the body of *kalām* on the part of later Sunnī *mutakallimūn*. Kalām appropriated categories, ideas, and terminologies of the *falāsifa*, but it did so on its own terms by domesticating them to its own priorities, methods, and stances. Arguably, once the Sunnī *mutakallimūn* realized their needs for “sophisticated theology” were in place, borrowing from the ideas of *falsafa*, the latter, while surviving in the form of *kalām*’s borrowing, “withered away as a separate discipline,” since, as an autonomous system, “some of its tenets were deemed offensive to their religious sensibilities” (for instance, limitations on God’s power or animate heavens). As a contemporary scholar aptly surmises, the *kalām* that results then is “neither pure philosophy nor a purely scripture-based, non-speculative theology, but rather a singular intellectual enterprise – a unique ‘philosophical’ [or ‘systematic’] theology – operating on its own terms, borrowing, rejecting, incorporating, appropriating, and reinterpreting the elements with which it comes into contact to suit its own purposes and in the service of its own autonomous objectives.”

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33 T. Winter, “Introduction,” in The Cambridge Companion to Classical Islamic Theology, 12-4. One may place emphasis differently that as the religiously offensive background of *falsafa* faded into oblivion, it came to be appropriated, and naturalized in the Islamic milieu to varying degrees, in the form of *hikma ishrāqiyya* (which can be read as metaphysical Sufism) at the hands of Suhrawardī (d. 587/1191) and his successors, and in the form of *manṭiq* and later philosophical *kalām* at the hands of Rāzī (d. 1210) and his successors. See A. Setia, “*Kalām Jadīd*, Islamization & the Worldview of Islam: Operationalizing the Neo-Ghazāliān, Attasian Vision,” 10.

34 Carl Sharif El-Tobgui, “Reason, Revelation and the Reconstitution of Rationality,” 76.
This is a trend that was initiated by Abū Ḥāmid al-Ghazālī (d. 505/1111) and matured with Fakhr al-Dīn al-Rāzī (d. 1210), and later continued at the hands of his successors from Sayf al-Dīn al-اعتماد (d. 1233), Naṣīr al-Dīn al-Bayḍāwī (d. 685/1286 or 691/1292), ‘Aḍud al-Dīn al-ي (d. 756/1355), Shams al-Dīn Iṣfahānī (d. 1348), and Sa’d al-Dīn al-Taftāzānī (d. 1390). Such was the success of the post-Ghazālī Sunnī mutakallimūn in putting falsafa (or its relevant ideas) within the ambit of the kalām tradition that Taftāzānī in the 14th c. and Ibn Khaldūn in the 15th c. were drawn to observe that one could no longer differentiate between kalām and falsafa since they were fused together.

Jurjānī (d. 1413) is one such post-classical Sunnī mutakallim whose works fall into the paradigm of this period, with some of his kalām works situated within a

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36 Quoted in Tim Winter, “Introduction,” in The Cambridge Companion to Classical Islamic Theology, 12 (and n. 32 and 33). Taftāzānī wrote that the kalām folk had “incorporated most of the physics and metaphysics, and delved deeply into the mathematics, so that but for the samʿiyat, kalām was hardly distinguishable from the falsafa.” Similarly, Ibn Khaldūn wrote that falsafa and kalām “came to be as if one and the same discipline.”
tradition of the most distinguished Ash‘arite mutakallīmūn.\textsuperscript{37} Through the lens of Jurjānī’s views on scientific knowledge and its philosophical foundations, this study aims to contextualize his thought in terms of its relation to classical Ash‘arī theology, on one hand, and Avicennian philosophy, on the other. In this regard, it is worth highlighting three key areas.

First is Jurjānī’s view of astronomical knowledge proper, and the manner he understands the nature and extent of the relation between astronomy and falsafa. For Jurjānī, to what extent is astronomy grounded in falsafa, particularly, its division of metaphysics and Aristotelian natural sciences? Equally important – and intriguing – is the way Jurjānī can bring his Ash‘arite attitude in terms of the discourse on God’s omnipotence to explicitly bear on his astronomy, both in his astronomical and kalām writings. The second area is Jurjānī’s vision of mathematical knowledge, as presented in his various theological-philosophical works, where again he “gives constant attention to the views of the falāsifa, whose positions together with the arguments supporting them are consistently confronted with those of the mutakallīmūn.”\textsuperscript{38} The third area concerns his understanding of truth and reality, as well as its ancillary concepts such as mental existence, which as indicated above, also arise as a result of his engagement with post-Avicennian philosophical (or epistemological) debates.


\textsuperscript{38} Sabra, “Science and Philosophy in Medieval Islamic Theology,” 24.
In addition to *kalām*, the tradition of Sufism (*taṣawwuf*) forms a particularly important context for Jurjānī’s metaphysical and epistemological views. He belonged to the Sufi tradition of the Naqshbandiyya, and practiced *sulūk* (traversing the Sufi way) under the direction of the widely-recognized and revered Central Asian Sufi Shaykh, Khwāja ʿAlāʾ al-Dīn ʿAṭṭār (d. 1400). In this regard, one can again draw parallels between Jurjānī and Ghazālī, for the latter (also an Ashʿarite *mutakallim*) had also taken to traversing the Sufi path in his later life, and under the guidance of another well-respected Shaykh, Khwāja Abū ʿAlī Fārmadī, who belonged from the Khwājagān, a line of Transoxanian Sufi masters from which evolved the Naqshbandī order. Apart from practicing the Sufi path, Jurjānī also wrote about *taṣawwuf*: a *manqabat* (Sufi devotional poem) in praise of his mentor Shaykh, a short treatise explaining the Sufi path, and another short treatise about the Sufi metaphysical ideas of the school of Ibn ʿArabī. Naqshbandīs were noted for comparatively stricter adherence to the Sharīʿa (Islamic law) in their *sulūk*, and this is a theme that Jurjānī explicitly stresses in his work.

Similarly important, he considered the Sufi way, based on the purification of the heart,

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40 See Hamid Algar, art. “Abu Yaqub Hamadani,” *Encyclopædia Iranica*, I/4, 395-6 (“His chief preceptor was Abū ‘Alī Fārmadī, who also guided Abū Ḥāmed Ḡazālī on the Sufi path; the concept of Sufism evolved by Hamadānī was indeed essentially similar to that of Ḡazālī, with its emphasis on the Koran and Sunna as the source of Sufi practice, and strict insistence on observance of the šari‘a”).

41 See ibid., and “Nakshbandiyya,” *EI²*, 7:934.
to be a more robust and sure way of gaining knowledge of God than that offered by kalām and falsafa, and also one, if pursued diligently, would enable the seeker to access higher experiential planes of truth, reality, and certainty that are, in principle, inaccessible through the means of reason and philosophical arguments.⁴²

Among the exact sciences, astronomy was the discipline in which Jurjānī excelled.⁴³ In his time, astronomy studied an earth-centered cosmos according to which revolving around the earth from nearest to furthest was the moon, Mercury, Venus, Sun, Mars, Jupiter, Saturn and the orb containing the fixed stars.⁴⁴ Although Jurjānī was not a practicing astronomer engaged in actual observations, his grasp of astronomy at the highest theoretical level is evident in the formidable full length commentary he wrote on the main work of advanced theoretical astronomy of his time, the Tadhkira of Naṣīr al-Dīn al-Ṭūsī (d. 1274). He is fully conversant with the works of earlier commentators of the Tadhkira, particularly Qutb al-Dīn al-Shīrāzī, whom he cites at different places. Also, he is well-versed in the specialized fields of astronomy, such as the knowledge of the fixed stars or the knowledge of the different calendars. Within his

⁴² On some elaboration of these ideas, see below section, “Postscript.”

⁴³ Here, and in the next line, I draw on the presentation offered by Robert Morrison in his Islam and Science: The Intellectual Career of Nizām Al-Dīn Al-Nīsābūrī: Culture and Civilization in the Middle East (London, New York: Routledge, 2007), 2.

astronomical writings, Jurjānī also presented a host of valuable epistemological ideas concerning certainty and doubt, the value of astronomy, relation to metaphysics and natural philosophy, the divine pre-ordainment of God, qualitative considerations in astronomy and parallels between astronomical and Islamic legal thinking. Of special concern in this study will be the examination and understanding of these and similar philosophical ideas which underlie his astronomical writing. Besides the purely astronomical writings, Jurjānī also “participated in the wider dissemination of astronomy via his commentaries on the theological texts, which were part of the curriculum of the religious colleges” (madāris, sing. madrasa). These commentaries also provide space for his views on the mathematical sciences, especially geometry and arithmetic. Accordingly, one of the main aims of the present work is to provide a broader understanding of Jurjānī’s view of the mathematical sciences, including astronomy, from within both his astronomical and philosophical-theological writings.

In this regard, one of the novel contributions of this dissertation will be its use of kalām treatises to understand the post-classical history of astronomy and mathematics in Islamic societies. The critical insight is that, notwithstanding the general trend whereby astronomy is becoming more mathematical, or less metaphysical, even to be able to articulate what precisely is happening to astronomy or mathematics is still


obscure, if only seen through the lens of works that we may today call scientific. By examining the discussions of astronomy and mathematics in *kalām* works and attending to the *kalām* framework, this study will thus prove invaluable for understanding the new interpretations and attitudes to scientific inquiry, and for addressing broader questions about the history, philosophy, and historiography of sciences in pre-modern Islamic societies.

### 1.1.3 Historiographical Context

Over the course of its history, the subject of science and philosophy in Islamic societies during the pre-modern period has often been discussed in the context of three grand narratives. The following provides a brief summary of the received historiography, and then indicates how this study continues in the tradition of revisionist studies by cutting through several historiographical debates in the history of the perspectives on Islamic science and philosophy. In surmising below the three methodological pitfalls of the received historiography, my understanding draws primarily on two path-setting articles by A. I. Sabra, “The Appropriation and Subsequent Naturalization,” and,

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47 The centrality of using *kalām* works to study the fortunes of science and philosophy in medieval Islamic societies has been argued most forcefully by A. I. Sabra, “Science and Philosophy in Medieval Islamic Theology,” 1-42.

48 Ibid., 41-2.

“Situating Arabic Science,” as well as some excellent, interrelating, and reinforcing revisionist scholarship over the last few decades.

- **Middle Link Theory:** As Sabra has shown, the underlying assumption is to view Islamic science and philosophy as useful only insofar as it is the reflection of Greek thought or the father of European ideas. In other words, the tendency is towards “reductionism,” that is to say, reducing all originality of Islamic thought to its Greek origins, or towards “precursorism,” that is to say, valuing only those moves that culminate in modern science. Implicit in reductionism is the belief that the Arab mind was inherently incapable of producing original thought either because of its race or religion or mental capacities, so that, given any apparent originality, the project becomes to investigate its Greek (Indian, Persian, Syriac or similar) sources and the manner through which it derives from them. Implicit in precursorism is the belief that the achievements of the Islamic scientific-philosophical tradition ought to be judged by the metric of early modern science given during the Scientific Revolution, so that the only real worth of an idea is always in terms of this foreign context, and can never be in terms of its own local context. Equating significance exclusively with development in the early modern period consequently leads, on one hand, towards assessments of praise for those individuals who contributed in the making of modern science (“father of sociology” or “father of chemistry” or “father of the experimental method”), and, on the other, towards inquiring why someone failed to make a ‘positive’ contribution or more generally why the Scientific Revolution did not take place in the Islamic world – questions which often are again answered by recourse to essentialist ideas about religion or culture.

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51 These include works particularly by George Saliba, Jamil Ragep, Robert Wisnovsky, Nomanul Haq, Ahmad Dallal, Sonja Brentjes, and Nahyan Fancy.

52 Sabra used these terms to refer to the methodological pitfalls in the old historiography of sciences in Islamic societies. On an elaboration of the twin ills of reductionism and precursorism, see his, “The Appropriation and Subsequent Naturalization,” 223-43, and the references contained therein. My understanding of the two terms here draws on his article.

Decline Narrative: (1) Faced with the absence of Scientific Revolution in the Islamic world, the relative flourishing of science and technology in the European West starting from the early modern period, and the abject state of science and research in Muslim societies today, a central category through which the question about these realities has often been posed is that of “decline.”54 When and why did Islamic science and philosophy decline? Implicit in the question is, again, a Eurocentric bias that the only scientific and philosophical tradition of worth is one that culminates in modern science – sometimes aptly described in school textbooks as the tradition from Plato to NATO.55 This has the effect of blinding the historian to any alternative or parallel intellectual traditions.

54 See orientalist works cited in earlier notes; see also David Lindberg, The Beginnings of Western Science (Chicago: Chicago University Press, 1992), 161-82.

at work, straightaway rejecting them as being worthless, and, consequently, never seriously examining nor understanding them. Explaining the decline of Islamic intellectual life becomes a pressing question in this narrative. However, instead of answering the decline question through a historical explanation, one that gives consideration to “conscious decisions, deep-seated urges, and the interplay of disparate events,” the narrative assumes that the waning of intellectual activity resulted from religious opposition or some intrinsic disposition of the Islamic sciences. The difficulty inherent in the assumption is that “even when Islamic science was flourishing, the seeds of its eventual decline were embedded within it.” The decline narrative also frequently surfaces in popular works. This happens in a more insidious way, often relying on one of two explanations, both of which are ideological, essentialist, and ahistorical. It is claimed that the Mongol invasions of the Muslim lands in the thirteenth-century occasioned a whole-scale decline of the Islamic philosophical-scientific tradition. Alternatively, and more frequently, it is argued that Ghazali’s refutation of the Hellenized philosophers in the twelfth-century dealt a powerful death blow to Islamic sciences and philosophy from which it has not been able to recover ever since.


• **Religion:** As Sabra points out, in explaining the decline of Islamic scientific and philosophical activity or the insignificance of that activity to the main currents of Islamic intellectual and religious life, the narrative implicitly assumes a certain view about the religion of Islam. According to this view, Islam (as a religion) is essentially “authoritarian and antithetical to rational and scientific inquiry,” and that it was “precisely the antagonism or indifference of the religious institutions which finally crushed the scientific and philosophical spirit in medieval Islam.” In other words, the Islamic orthodoxy is taken to constitute a “homogenous, unchanging entity,” one that is anti-science and anti-rationality.  

This received historiography has paled in vigor in recent years. Owing to a series of revisionist works of a diverse set of scholars studying different aspects of Islamic intellectual and cultural life, every single aspect of this narrative has been challenged and shown to fly in the face of historical facts. The status of this narrative today is no longer historical, but rather ideological or polemical and largely represents the legacy of the early twentieth-century orientalist (and rather impressionistic) understandings of Islam. The task of presenting the ever-increasing historical evidence debunking the

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60 Sabra, “The Appropriation and Naturalization,” (who also provides in the article a forceful critique of this understanding of religion).

61 It would be out of place here to present even a sampling of the ever mounting evidence that cuts through the above narrative. For good overviews that summarize recent published literature debunking the received historiography, see A. Dallal, *Islam, Science, and the Challenge of History*; Justin Stearns, “Writing the History of the Natural Sciences,” 923-51; and N. Fancy, *Science and Religion*, 1-16.

62 This is particularly true in the case of popular works mentioned above. For instance, I agree with Jamil Ragep (and its endorsement by Nahyan Fancy) that in the cases like those of Weinberg (and we can include here the more extreme case of Pervez Hoodbhoy), “[r]ather than benign neglect, what we have instead is an active antipathy towards Islam and its civilization[al] manifestation that is couched in blatantly political terms.” See J. Ragep, “When did Islamic Science Die?” 1-3; Fancy, *Science and Religion*, ch. 1, n. 20.
narrative has been adequately undertaken in different studies. Here, I would like instead to show how this study builds on and also goes beyond the existing revisionist scholarship on science in Islamic societies.

First: Jurjānī lived through the fourteenth- and fifteenth-centuries, a period which, according to the narrative, was one of stagnation or decline characterized by little (or no) significant scientific or philosophical activity. This study reinforces the mounting evidence to the contrary: the post-classical period was one of particularly fertile intellectual thinking leading to attainments of considerable intrinsic philosophical and scientific import. It does so by showing Jurjānī’s novel contributions to key issues in the philosophical thinking about science, such as the grounds for the attainability of knowledge, the questions of if and how astronomy can provide some truths about the real world, and of how mathematical entities in the mind can relate to physical objects in the world.

Second: In this study, I aim to situate Jurjānī’s vision of scientific knowledge within his own intellectual context, and “understand the meaning and significance” of his views in the context of his own writings “without falling into the trap of assigning contemporary meanings” or judging his work using external standards alien to his

63 See notes above.

64 The greatest and most enlightening evidence for the existence and historical importance of the field of Islamic science and philosophy in the post-classical period lies embedded in the staggering corpus of Arabic philosophical, theological, and scientific commentaries belonging from the post-classical Islamic era, the bulk of which unfortunately remain in manuscript. See Robert Wisnovsky, “The Nature and Scope of Arabic Philosophical Commentary.”
I shall do so by examining his views on the foundations of knowledge from within a diverse set of his writings (including astronomical, theological-philosophical and spiritual, among others) and by contextualizing them in relation to different intellectual traditions. In other words, this study will take the middle road between reductionism (reflection of Greek thought) and precursorism (father of European ideas) by contextualizing Jurjānī’s thought within his own intellectual culture.

Third: In recent years, scholars have done much to show the complexity of the relationship between Islam and science. Since Sabra’s seminal article, “Situating Arabic Science: Essence versus Locality,” the focus has shifted away from providing simple, essential, and general answers – harmony or conflict – towards studying localities (different times, different places, different situations) with an aim to explore the actual spaces of intersection and understand the nature of engagement in its specificity. For instance, as Nahyan Fancy notes, in the past couple of decades, we have learned much about (1) the importance of religious practices which inspired important advancements in mathematical disciplines by providing problems like the determination of qibla and lunar months (viz. David King), (2) the pivotal role religious doctrine played in

65 I draw my thinking from N. Fancy, Science and Religion, ch. 1 (the chapter makes a forceful argument for contextualizing the results of the authors within their own intellectual and cultural ambit).


67 See Nahyan Fancy, Science and Religion, 7, and accompanying notes.

expunging astrology from Greek astronomy, resulting in the new field of theoretical astronomy (*ilm al-hay'a*) (viz. George Saliba), 69 and (3) the ways in which a religious discourse may have allowed for modifications in the foundations of Islamic astronomy (viz. Jamil Ragep), 70 and, conversely, the manner in which developments in astronomy led to adjustments in *kalām* (viz. Ahmad Dallal). 71 Similarly, in the last ten years or so, we have also learned how even the “contents” of a scientific discourse can be shaped by a religious one. 72 Three examples are most impressive. Justin Stearns’s work on the concept of contagion in pre-modern Muslim and Christian societies uncovers the “complicated interactions between jurisprudence, *kalām*, medicine and Sufism that characterize a diverse array of Muslim responses to epidemic disease.” 73 The other two studies focus on individual polymaths and, by taking into account both their scientific and religious output, “have provided templates for how a nuanced history of Islamicate monumental survey, *In Synchrony With the Heavens: Studies in Astronomical Timekeeping And Instrumentation in Medieval Islamic Civilization*, 2 vols. (Leiden: Brill, 2005).


72 Fancy, *Science and Religion*, 7 (who quotes Dallal, providing an assessment of the then prevalent state of scholarship, “very few studies” have taken to “understand the ways in which the content of both scientific and religious discourse were shaped by these mutual interactions”).

science can be written.”

Robert Morrison’s study of a fourteenth-century Quranic exegete and astronomer, Niẓām al-Dīn al-Nīṣābūrī, shows the intricate ways in which astronomy, kalām, and fiqh came together in his thought. Nahyan Fancy investigates the ways in which philosophy/theology, medicine, and hadith came together and influenced one another in the works of the thirteenth-century scholar, Ibn al-Nafīs. My own work can be viewed as undertaking a similar analysis on the part of Jurjānī by investigating how his mathematics, astronomy, kalām, falsafa, and Sufism came together and influenced one another in his views concerning the foundations of scientific knowledge. Ultimately, it shows how Jurjānī could combine different approaches to knowledge (philosophical/theological, scientific, and mystical/spiritual) into a coherent epistemological scheme.

Situated within these contexts, this study makes interventions in fields of Islamic intellectual history and science-religion dialogue within a broadly multidisciplinary framework. It draws on recent studies in the history of science (primarily, the mathematical sciences, including astronomy), philosophy, and theology in pre-modern Islamic societies, while applying insights from contemporary science-religion discourse.

74 J. Stearns, “Writing the History of the Natural Sciences,” 934.


77 I draw the language of this paragraph from Intisar Rabb, “Doubt’s Benefit,” 18.
(in both Islamic and Western contexts), and utilizing themes and methodologies of
religious studies, intellectual history, and philosophy of science.

1.2 Structure of the Thesis

The thesis is divided into two parts, comprising a total of four chapters and a
conclusion. Part I, consisting of Chapters 2 and 3, provides the main elements of
Jurjānī’s philosophy and attendant epistemology as can be gleaned from his various
thelogical-philosophical works. Chapter 2 presents an overview of Jurjānī’s views on
the attainability of knowledge, focusing on a few fundamental questions directly
pertaining to scientific activity. Is knowledge of nature accessible to man? What kind of
knowledge is accessible? By what principles and methods can such knowledge be
attained? Overall, Jurjānī exhibits a rather confident stance on the attainability of
knowledge. It is a stance premised on certain core ideas that play an important role in
his intellectual theorizing: demonstrative reasoning, the inclusion of probability, and the
principles of knowledge.

Chapter 3 examines Jurjānī’s theory of truth and its attendant epistemology.
Truth was conventionally defined as comprising of a relation of conformity between a
judgment and fact. But how is this definition actualized for judgments about various
cr kinds of extra-mental and mental entities? And what kinds of entities are “facts” toward

78 This section, in terms of its presentation and organization of content, is an adaptation from
which a judgment must conform? After setting out the basic philosophical problem of truth, the chapter offers a historical overview of the issue beginning from Ibn Sīnā’s theory of truth based on the Active Intellect. It traces, summarily, the complex history of its “rejections, retentions, and transformations” in the ensuing period, and its eventual replacement in Jurjānī by his “more economical, human-centered epistemology” that focused on the crucial concept of nafs al-amr (lit., the thing itself) and discarded altogether the Active Intellect. The heart of the chapter is a presentation and analysis of three central aspects of Jurjānī’s epistemology concerning truth: (1) the criteria of determining the truth of a judgment, (2) an understanding of mental existence (wujūd dhīhnī), and (3) an understanding of nafs al-amr. Each aspect is dedicated a separate section, and is understood by collating and synthesizing Jurjānī’s views across his various philosophical-theological works. Moreover, the section on mental existence, in addition to detailing Jurjānī’s views, also examines the development of mental existence across several works in the thirteenth- and fourteenth-centuries that inform Jurjānī’s understanding.

Part I is intended to provide an exposition of the theoretical elements of Jurjānī’s epistemology enabling us to equip ourselves with the characteristic concepts and categories that are indispensable for understanding how he views scientific...

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79 For this phrase, see B. Gregory, The Unintended Reformation, back cover.

80 For this phrase, see Robert Wisnovsky, “Avicenna’s Islamic Reception,” 197.
knowledge. Part II, consisting of Chapters 4 and 5, presents Jurjānī’s specific vision of the mathematical sciences, including astronomy. Chapter 4 aims to understand Jurjānī’s view of the mathematical sciences from within his philosophical-theological works. The main problematic that is addressed here is Jurjānī’s novel defense of the mathematical sciences against the then prevalent skepticism regarding the reality, truth, and certainty of its conclusions. Part of the goal is to reconstruct, assess, and contextualize the philosophical arguments that Jurjānī deploys against his opponents. Of special import is how Jurjānī’s distinctive epistemology provides him with the conceptual wherewithal to argue for his more positive conception of the mathematical sciences, the ontological status of mathematical objects, and the epistemological confidence in its conclusions.

Chapter 5 extends this conception of the mathematical sciences by examining the vision of astronomy expressed in his properly astronomical works. The key problematic of this chapter concerns the theme of “knowing” in astronomy: Why should one know or study astronomy? What can one know through astronomy? How does one know in astronomy? And, finally, what are the limits of astronomical knowledge? In exploring this theme, the chapter specifically addresses a few key issues playing a central, leading role in Jurjānī’s vision of astronomical knowledge: astronomy as a means of glorification; the extent of astronomy’s dependence on falsafa; the status of astronomical conclusions; and strategies for dealing with the problem of equivalence

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81 This line is an adaptation from Carl Sharif El-Tobgui, “Reason, Revelation and the Reconstitution of Rationality,” p. xx.
(i.e., of choosing between two rival hypotheses which are mathematically equal, but physically incongruent). Of special significance is to see how Jurjānī’s methodical thinking was steered by and led to the solution of problems encountered in the astronomy of the time.82

In the Conclusion, we summarize the achievements – and ingenuity – of Jurjānī’s epistemological views, as well as his vision of the mathematical sciences that is informed by it. We end by offering some general remarks on his broader epistemological project, to be explored more fully in future research, in which his Sufi views on the attainability of knowledge acquire paramount importance in the form of expanding the key notions of reality, truth, and certainty. The broader interest of Jurjānī’s project, indeed, lies primarily in his “broad-based approach to knowledge”83 and in the manner he can combine different approaches to attaining scientific-metaphysical-mystical knowledge into a coherent epistemological scheme.

Before we turn to Chapter 2, we present below a brief introduction to Jurjānī’s life and works. Given the analytical focus of this study, providing a thorough intellectual and cultural biography, though certainly useful, is not required nor directly relevant


My limited task is simply to provide a timeline or sequence of events, and list his major works relevant to this study. However, even the precise goal of providing a basic chronology poses difficulties arising from conflicting biographical evidence in the primary sources. Notwithstanding these difficulties, the sources however do provide enough guidance to be able to sketch a general outline of Jurjānī’s life and its different phases – a task which is sufficient for the purposes of this study. In the below section, I reproduce this typical outline of Jurjānī’s life relying largely on the secondary literature concerning Jurjānī’s biography.

1.3 Chronology of Jurjānī’s Life

Zayn al-Dīn Abū al-Ḥasan ʿAlī b. Muḥammad b. ʿAlī al-Ḥusaynī al-Jurjānī al-Ḥanafī was born on Wednesday, 24 Shaʿbān, 740 A.H. /24 February 1340 C.E. in the village of Tākū near Astarābād in Jurjān, and died in Shīrāz on Wednesday, 6 Rabīʿ al-Thānī, 816

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84 This paragraph is an adaptation from Jamil Ragep’s introductory remarks about Ṭūsī. See his ed., trans., and comment. Naṣīr al-Dīn al-Ṭūsī’s Memoir on Astronomy (al-Tadhkira fi ʿilm al-hay’a) (New York: Springer-Verlag 1993), 3-4.

A.H. /6 July 1413 C.E. In the sources, he is more commonly referred to as “al-Sayyid al-Sharīf” on account of his noble lineage, for he was a distant descendant (13 generations) of Muḥammad b. Zayd al-Dāʾī (d. 287/900), who himself was a descendant of the Prophet’s family and also a Zaydī prince of the Daylam region. For this reason, in Persian works, and especially in the Indo-subcontinent, Jurjānī also receives the honorific title, Mīr (meaning leader).

Jurjānī received his initial instruction in his hometown of Astarābād; subsequently, most likely before 1362, while in his early twenties, he left his hometown in order to further his education, marking the beginning of an important phase in his life over the course of which he would end up traveling far and long, for well over a decade, in order to quench his thirst for knowledge in practically all fields of learning. Jurjānī first went to Herat with the intention of studying with the notable author Quṭb al-Dīn Rāzī [al-Taḥtānī], particularly, the commentaries the latter had written on Urmawī’s Matāliʿ al-Anwār and Kātibī’s logical work, Risāla Shamsiyya.

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86 These are the birth and death dates according to S. Gümüş, “Cürcânî,” TDIA. J. van Ess says he takes the dates from S. Gümüş, but mentions 22 Shaʿbān/22 February. See his Die Träume, 1.

87 Gümüş, “Cürcânî,” 134; J. van Ess, Die Träume, 6-7.

88 J. van Ess, “Jorjāni,” Encyclopaedia Iranica, 21. It is worth mentioning that his two famous Persian works on the Arabic language are Nahw Mīr (Nahw, or Arabic Grammar/Syntax, by Mīr) and Sarf Mīr (Sarf, or Arabic Morphology, by Mīr). A modern translation of Nahw Mīr from Persian to English highlighting the importance of the work writes that “throughout history, thousands of Muslim scholars (ʿulamāʾ) in the Indian subcontinent and Central Asia have commenced their studies with the work ‘Nahw Mīr.’” Today, both works continue to be taught as part of the Dars-i Nizāmī syllabus.

89 Gümüş, “Cürcânî,” 134.

90 Jamil Ragep, Naṣīr al-Dīn al-Ṭūsī’s Memoir on Astronomy, 4 (who points, similarly, about Ṭūsī that he “would travel widely to satisfy his craving to be educated in virtually all fields of learning”).
However after a brief period, Taḥtānī, given his old age, excused himself from teaching and encouraged Jurjānī to go to Egypt where he could study with one of his renowned students, Muhammad ibn Mubārakshāh [al-Bukhārī], who was teaching there.91

In his journey towards Cairo, Jurjānī first reached Anatolia, where he hoped to attend the gathering of a notable scholar, Shaykh Jamāl al-Dīn al-Āqsarāī, about whom he had heard a general praise: he is better in his teaching than writing.93 However, Jurjānī’s arrival in the city coincided with Āqsarāī’s death, and so he continued his onward journey towards Egypt, accompanied by one of Āqsarāī’s notable students, Mullā Shams al-Dīn al-Fanārī (d. 834/1431).94

Jurjānī’s stay in Cairo, which continued for nearly a decade,95 marks one of the most defining periods of his intellectual career, for the city’s intellectual circles or networks, formed around several key personalities, allowed him the unique opportunity to immerse himself in the advanced learning of both the “rational and transmitted

91 The full name is Mīrak Shams al-Dīn Muḥammad ibn Mubārakshāh al-Bukhārī al-Manṭiqī.
92 Brockelmann had suggested (without disclosing his sources) the date of 766/1365 for Jurjānī’s visit to Herat, which, in turn, has given rise to some doubts (according to J. van Ess) about the specific identity of Quṭb al-Dīn Rāzī. By Jurjānī’s explicit account, he intended to meet the author of Sharḥ Matālī, Quṭb al-Dīn Rāzī al-Tahtānī; however, Tahtānī most likely was in Damascus (not Herat) in 1365, the year in which al-Tahtānī died there. See J. van Ess, Die Träume, 5-17, who views this as an unresolved chronological difficulty. One may avoid such doubts by stipulating an earlier date for Jurjānī’s visit to Herat, which is the case in Gümüş, “Cürçānī,”
93 van Ess, Die Träume, 18-9; Gümüş, “Cürçānī,” 134.
94 van Ess, Die Träume, 19; Gümüş, “Cürçānī,” 134.
sciences.” Ibn Mubārakshāh al-Bukhārī, commonly referred to as al-Manṭīqī (The Logician), was one of the intellectual giants of the region, with whom Jurjānī studied not only Taḥtānī’s commentaries on Matāliʿ al-Anwār and Risāla Shamsiyya, but also Ījī’s magnum opus of Ashʿarite theology, Mawāqif fī ʿilm al-kalām – which was a work Ibn Mubārakshāh was said to have acquired from Ījī himself.

In addition, Jurjānī also studied Ḥanafī fiqh with Akmal al-Dīn al-Bābartī (d. 786/1384), particularly, the latter’s gloss on Marghānīnī’s al-Hidāya. Bābartī, considered the “shaykh of the non-Arab Ḥanafīs in Cairo,” was an “eminent Ḥanafī jurist from Bayburt with a very strong connection to the Mamluk ruling elite,” and was also noted, as per Ibn Khaldūn, for possessing intimate knowledge of Sufi teachings, particularly of the school of Ibn ʿArabī. Additionally, among the students of Ibn Mubārakshāh and Bābartī, and forming Jurjānī’s fellow colleagues in Cairo, included such luminaries as the eminent jurist and leader, Shaykh Badr al-Dīn al-Sīmāwī (d. 962).

96 In addition to the biographical secondary literature (mentioned above), see also İlker Evrim Binbaş, Intellectual Networks in Timurid Iran: Sharaf al-Dīn ʿAlī Yazdī and the Islamicate Republic of Letters (Cambridge: Cambridge University Press, 2016): 74-165, esp. 132-36 (the author provides a brief sketch of the important personalities which formed this informal intellectual network in Cairo).

97 In general, not much is known about Ibn Mubārakshāh al-Bukhārī. For now, see Binbaş, Intellectual Networks, 133 (and footnotes): “Also known as Mīrak-i Bukhārī, Shams al-Dīn Muhammad al-Manṭīqī was one of the intellectual giants of the later middle period about whom we know next to nothing. A Bukharan in origin, he studied with Quṭb al-Dīn Shīrāzī and spent most of his life in Cairo. He was one of the key figures who achieved the combination of philosophy (falsafa) and theology (kalām) in the late medieval period. In Ḥāfiẓ Halīl’s biography of Bedreddīn, he appears as the teacher of Sayyid Sharīf-i Jurjānī. He goes to Mecca with Bedreddīn and survives a shipping accident.”


100 “Kitābshināsī,” 135.

101 Binbaş, Intellectual Networks, 134.
819/1416), the Ottoman poet and historian, Aḥmedī (d. 815/1412-13), the physician, Ḥājjī Pasha (d. 827/1424), as well as Mullā Fanārī who would later become the first Ottoman grand mufti (shaykh al-islām).\textsuperscript{102}

For Jurjānī, the stay in Cairo would have served to further strengthen his loyalty towards the Ḥanafite madhhab and Ashʿarite kalām.\textsuperscript{103} Besides, it also marked the beginning of his contact with the Sufi circles, for “he is reported to have lived for four years in Saʿīd al-Suʿadāʾ (lit., The Supremely Happy One), an old Fatimid palace converted to khānqā in Cairo, which had been dedicated by Ṣalāḥ al-Dīn Yūsuf b. Ayyūb (d. 1193) as a hostel where migrating dervishes could stay free of charge.”\textsuperscript{104}

Having completed his studies, Jurjānī began his return journey home, passing by perhaps Bursa or Edirne.\textsuperscript{105} At any rate, “by around 779/1377 or 1378, Jurjānī was already back in Jurjān,” where, at the advice of a certain local scholar, Saʿd al-Dīn Masʿūd, “Jurjānī succeeded in winning the attention of the Muzaffarid ruler Shāh Shujāʿ (r. 1358-64 and 1366-84) who had been fighting his nephew, Amīr Yaḥyā, and was now encamped on a plain near Astarābād.”\textsuperscript{106} Jurjānī could “only approach Shāh Shujāʿ under false pretenses and in military disguise, but he then impressed the ruler so much by his scholarly proficiency that Shāh Shujāʿ asked Jurjānī to accompany him to Shīrāz where


\textsuperscript{104} Ibid.

\textsuperscript{105} Ibid.

\textsuperscript{106} Ibid.
Jurjānī was offered a position in a *madrasa* associated with a newly-founded hospital (*dār al-shifāʾ*). Jurjānī stayed in Shīrāz for around ten years, teaching lessons, issuing legal opinions (*fatwā*) and authoring works, and, over the course of this period, came to acquire a quite formidable repute in the region, particularly with regard to the rational sciences.

A particularly important phase of Jurjānī’s life began when the Turco-Mongol conqueror Timur (historically known as Tamerlane; r. 771/1369 – 807/1405), during his victory over the Muzaffarids, seized Shīrāz in 789/1387. Jurjānī’s house “had been declared out of bounds when Timur’s troops started looting the town,” but then Jurjānī had to leave Shīrāz and “follow the conqueror to Samarqand,” which Timur had decided to build as his visionary capital city by bringing back various scholars, artisans and workers from his conquered territories. Jurjānī’s residence in Samarqand, which continued for nearly eighteen years (789/1387-807/1405), marks a period of intense scholarly activity, during which he, as a distinguished senior scholar, taught large classes comprising of students and teachers alike, wrote some of his most important works, and

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107 Ibid.


109 Van Ess, *Die Träume*, 34-5; also Gümüş and “Kitâbshinâsî.”


111 This is a conservative estimate. He may still have been in Samarqand until 812/1408 or 1409 for he is reported to have issued an *ijâza* for a certain Muḥammad b. Ḥâji b. Shaykh ‘Umar b. Muḥammad in Samarqand in 812. See R. Pourjavady, *Philosophy in Early Safavid Iran*, 2 (and footnote 3).
frequently engaged in scholarly, high-profile, often public, discussions and conversations with other established scholars, most notably, Saʿd al-Dīn Masʿūd al-Taftāzānī (d. 792/1390). Despite “some scholarly differences on points of insignificant details with the latter,” Jurjānī continued to have “great respect” for Taftāzānī “who was almost twenty years older,” and also wrote a gloss on Taftāzānī’s long commentary (Muṭawwall) on Sakkāki’s Miftāḥ al-ʿulūm (The Key to the Sciences). During this time, Jurjānī also wrote what is arguably his most important – and enduring – work, namely, the famous commentary to Ījī’s Mawāqif which was completed in 1404.

Besides Jurjānī’s scholarly activities, it was during this long stay in Samarqand that he was introduced to KhwājaʿAlāʾ al-Dīn ʿAṭṭār (d. 1400), a highly revered Central Asian Sufi Shaykh of the Naqshbandiyya ṭariqa (spiritual tradition), who was the primary successor and son-in-law of the eponymous founder of the ṭariqa, the venerable Khwāja Bahāʾ al-Dīn Naqshband al-Bukhārī. While it is not unlikely that Jurjānī may have met the latter who passed away two years later in 1389 in the relatively nearby city of Bukhārā, it was under the guidance and direction of KhwājaʿAlāʾ al-Dīn ʿAṭṭār, that

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114 Ibid.
117 The title of one of his Sufi devotional work (manqabat) reads, “This is the treatise of Sayyid Sharīf for his Shaykh Khwāja Bahāʾ al-Dīn Naqshband and KhwājaʿAlāʾ al-Dīn ʿAṭṭār, may God bless their souls.” See Jurjānī, Istanbul Esad Efendi MS 3597, 18b-21a.
Jurjānī began his sulūk (spiritual journey)\textsuperscript{118} in the Naqshbandī ṭariqa. According to Jāmī’s (d. 1492) Nafaḥāt al-uns, a well-known collection of biographies of Sufis, Jurjānī was among the “pleasing and well-liked companions of the venerable Khwāja ‘Alā al-Dīn Aṭṭār,” who “possessed complete sincerity and unassuming humility in his service towards the Shaykh,” and who was often heard saying that, “until I attained the companionship of the venerable Khwāja Aṭṭār, I did not truly know God.”\textsuperscript{119} In the same vein, it is known that, during the days that Jurjānī was away from the Shaykh’s company, Jurjānī wrote “two nostalgic letters” (maktūb) to him, filled with “feelings of the deepest and warmest attachment.”\textsuperscript{120} At some later time, Khwāja ‘Alā al-Dīn Aṭṭār also “instructed Jurjānī to stay in close contact with one of his advanced students, Mawlānā Nizām al-Dīn Khāmush,” and in compliance with this instruction, it is said that Jurjānī “never left the gatherings (majālis) of Mawlānā Khāmush.”\textsuperscript{121}

Jurjānī’s stay in Samarqand continued until Timur’s death in 807/1405, for after some time, he returned to Shīrāz, where he would continue to remain until his death in

\begin{footnotes}
\item[118] Sulūk refers to the spiritual journey towards attaining nearness to God, based on disciplining the soul and purifying the heart through specified acts of voluntary worship (ʿibāda) and focused remembrance (dhikr). See L. Lewisohn, “Sulūk,” EI\textsuperscript{2}, consulted online.


\item[120] The two letters are presented in Rashahāt ‘Ayn al-Hayāt. See Rashahāt, vol. 1, 188-90 of the Persian work; and pp. 155-57 of the Arabic version.\item[121] Rashahāt ‘Ayn al-Hayāt, vol. 1, 187-8 (Persian work); and p. 155 (Arabic version).
\end{footnotes}
816/1413, and where eventually he would also be buried “near the Old Mosque on the ground of the madrasa.” ¹²² In general, Jurjānī seems to have continued his scholarly activities and sulūk in Shīrāz. He is “known to have established contacts there with other Sufis also, especially Shāh Ni’matullāh Kirmānī.”¹²³ And it is during this period that he wrote his well-respected, full-length commentary on Ṭūsī’s astronomical work, Tadhkira, which is marked (in the Damascus, Zāhiriyya MSS) with the completion date of Tuesday, middle of Dhū al-ḥijja, 811/ (probably) 30 April 1409.¹²⁴ Shortly before his death, he also answered a religious questionnaire which Iskandar Sulṭān, Timur’s grandson and ruler of Fāris since 815/1412, had sent to him.¹²⁵

A prolific author and scholar of the early Timurid period, Jurjānī’s depth and breadth of learning were staggering. His entire scholarly compendium covered over one hundred works, comprising of independent treatises, commentaries, and glosses, in such wide-ranging fields as Qur’ānic commentary, ḥadīth (Prophetic traditions), fiqh (Islamic substantive law), uṣūl al-fiqh (Islamic legal methodology), rhetoric, Arabic grammar, Sufism, kalām, falsafa, logic, and astronomy, to name only a few. After his death, Jurjānī’s thought continued to have a tremendous impact in several fields,¹²⁶ as

¹²³ Die Träume, 44-8.
¹²⁴ Jurjānī, Sharḥ al-Tadhkira, Damascus Zāhiriyya MS 3117, 160a.
¹²⁵ “Kitābshināsī,” 135-6; Die Träume, 43-4.
¹²⁶ Jamil Ragep, Naṣīr al-Dīn al-Ṭūsī’s Memoir on Astronomy, 3 (who points, similarly, about Ṭūsī that “after his death, Ṭūsī’s influence, which can only be described as monumental, continued in fields as diverse as ethics, natural philosophy, mathematics, Sufism, astronomy, ... and logic”).
many of his works almost immediately acquired the status of canonical readings within
the traditional curriculum, some of which, especially pertaining to Arabic grammar and
kalām, to this day continue be taught in madāris in parts of the Muslim world.

1.4 Works Relevant to the Study

For the purpose of this study, I focus on a rather small subset of his works that
pertain to the issue of scientific knowledge and its foundations, and which broadly
pertain to three distinct fields.

The first cluster of works belongs to the genre of post-classical systematic kalām
works, writings which methodically address various topics of theological-philosophical
import. These include: (1) a celebrated commentary (sharḥ) on Ījī’s Mawāqif fi ‘ilm al-
kalām (The Stations of the Discipline of Kalām) which became a standard work of post-
classical Ash’arite kalām;127 (2) a gloss (ḥāshiya, or super-commentary) on Shams al-Dīn
al-Īṣfahānī’s “old” commentary (sharḥ qadīm), entitled, Ṭasyīd al-qawā’id (The
Rectification of Principles) on Tūsī’s Tajrīd al-i’tiqād (The Paring of Beliefs);128 (3) a gloss

127 For this study, I rely on the edition by Maḥmūd ʿUmar al-Damyaṭī, in eight parts bound in four
volumes, Beirut: Dār al-Kutub al-ʿIlmiyyah, 1419/1998, which contains al-Ījī’s Mawāqif, Jurjānī’s
Commentary (Sharḥ), and two Glosses (Ḥāshiyas) by ʿAbd al-Ḥakīm al-Siyalkūṭī and ʿĪsān Čelebi ibn
Muḥammad-shāh al-Fanārī.

128 See Tūsī, Tajrīd al-aqāid, ed. ʿAbbās Muḥammad Sulaymān (Alexandria: Dār al-Maʿrīfah al-
Jāmiʿiyya, 1993); Iṣfahānī, Sharḥ Tajrīd al-aqāid, MS Majlis Shūra Millī 5685; and Jurjānī, Ḥāshiya ʿalā
Sharḥ al-Tajrīd, MS 865 [988H], Robert Garrett Collection, Princeton University Library. Jurjānī’s glosses on
the first chapter (maqṣad) of Iṣfahānī’s commentary have been edited as an MA dissertation by Ḥūriyya
Shujāʿī Bāghīnī at the University of Qum, Qum, 1379/2000. The author gratefully acknowledges the help of
Reza Pourjavady in obtaining a copy of this edition. Though I have not had the chance to consult, there is
now an edition of Iṣfahānī’s commentary on Tūsī’s Tajrīd, the Tasdid al-Qawā’id: ed. Khālid ibn ʿĪsān

The second cluster comprises of Jurjānī’s astronomical writings proper, which include two works: (1) his primary work of advanced theoretical astronomy, *Sharḥ al-Tadhkira* (Commentary on the *Tadhkira*), which was a widely-recognized, medium-sized scholarly commentary on the significant astronomical work of his time, Ṭūsī’s *Al-Tadhkira fī ʿilm al-hay’a* (Memoir on Astronomy);133 and (2) a work of elementary

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129 I utilize the published edition by [Istanbul]: Maṭba‘at al-Ḥājj Muḥarram al-Busnawi, 1303 [1885], which contains Urmawī’s main text, *Maṭāliʿ al-anwār fī al-hikmah wa-l-maṭnīq, Taḥtānī’s commentary, Lawāmiʿ al-Asrār fī Sharḥ Maṭāliʿ al-Anwār, and Jurjānī’s gloss (ḥāshiya) on the Lawāmiʿ*, which is appended at the end.


131 I utilize the published edition by Qazān: al-Maṭba‘a al-Karimiyya, 1319 [1902], which contains Kātibī’s main text (*matn*), Ibn Mubārakshāh al-Bukhārī’s commentary (*sharḥ*) and Jurjānī’s gloss (*ḥāshiya*), printed in the margin.


133 For Jurjānī’s commentary, I have mainly used Damascus, Zāhiriyyya MS 3117, 160 ff. Istanbul, Süleymaniye Library H. Hüsnü Paşa MS 1276, 208 ff. was used for comparison. For Ṭūsī’s *Memoir*, I use the
theoretical astronomy, *Sharḥ al-Mulakhkhaṣ* (Commentary on the *Mulakhkhaṣ*), which was a full-length commentary on al-Jaghmīnī’s (fl. 13th c.) popular textbook of astronomy, *Al-Mulakhkhaṣ fī al-hayʿa al-basīṭa* (Epitome of Astronomy).\(^{134}\)

The final cluster of works relate to his dedicated writings on Sufism (which is a topic he also discusses partially in some of his *kalām* works), including: (1) a short, Persian treatise touching on various principles of *sulūk*, entitled, *Risāla Shawqiyya* (The Treatise on the Yearning for God);\(^{135}\) and (2) a short Arabic treatise written in praise of Khwāja Bahāʾ al-Dīn Naqshband and Khwāja ‘Alā al-Dīn Aṭṭār, which also incorporates a record of local history and some biographical details.\(^{136}\)

In addition to the above works which form the primary focus of this study, I make frequent references to his well-known *Kitāb al-Taʿrīfāt* (The Book of Definitions), a lexicographical work containing the definitions of technical terms belonging to the standard fields of Islamic learning, and, on various points, also consult some of his works pertaining to the transmitted sciences – which have been listed in the bibliography.

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\(^{135}\) See *Risāla Shawqiyya*, Istanbul Carullah MS 1006, fol. 1a-6b.

\(^{136}\) See Istanbul Esad Efendi MS 3597, 18b-21a.
CHAPTER 2:
AN OVERVIEW OF JURJĀNĪ’S THEORY OF KNOWLEDGE

2.1 Introduction

An important yet largely understudied aspect of scientific thought in the post-classical Islamic period consists of examining the precise epistemological foundations upon which it is based and, indeed, acquires coherence and clarity. In this part of my study, my aim is to provide an overview of the epistemological foundations of Jurjānī’s scientific thought as a first step towards understanding his view of scientific knowledge – in particular, his view of the mathematical sciences, including astronomy. My specific

focus will be to address two broad aspects of his epistemology: his general theory of
knowledge and his theory of truth. Such an examination is, of course, of considerable
intrinsic philosophical interest. It is also essential, rather a pre-requisite, in order to fully
understand Jurjānī’s views of scientific (or mathematical) knowledge on two counts.
First, by reconstructing Jurjānī’s theory of knowledge, including its nature, division,
sources, conditions, and method, among others, we attain an invaluable epistemological
context which, in turn, provides clarity to his views on the attainability of the knowledge
of nature. As such, his epistemological views provide the grounds for understanding,
what can be likened as his philosophy of scientific knowledge.

Second, Jurjānī frequently draws on many epistemological terms and concepts in
his various works to highlight significant features of his scientific thought. However, in
many cases the terms are never fully explicated and his comments are brief, since his
immediate readers, one would assume, would be familiar with the epistemological
discourse Jurjānī is engaging in. Accordingly, knowing that discourse becomes crucial,
since it brings into relief the meaning of his various epistemological ideas. It enables one
to acquire clarity regarding his statements and appreciate the full significance and, as
we shall see, the striking novelty of some of his scientific views.

Besides these two general considerations, understanding Jurjānī’s account of
knowledge and truth is particularly invaluable in a more concrete respect. It enables one
to address three clusters of questions that are not only of substantial epistemological
interest, but are also central for understanding the specific nature of mathematical and
astronomical thought. The first cluster of questions pertains to the issue of the
attainability of knowledge of nature. How does Jurjānī understand knowledge? Can one attain sure knowledge of the world? What avenues of thinking are available to reach true and sure knowledge? Related to these concerns is the more specific question about the status of mathematical knowledge and sensory knowledge, that is, knowledge acquired by means of the senses. Where does mathematical thinking originate, and what grounds of justification does one have for its reliability? Likewise, what constitutes sensory knowledge, can it be justified, and, if so, how? Answering these questions is critical in understanding his views of astronomical knowledge, not only because Jurjānī considers astronomy as a science whose conclusions are arrived at by sensory data, but also because the crucial term ḥissiyya (sensory) occurs frequently and substantially throughout his astronomical work.2 As such, the term deserves careful scrutiny. This is further reinforced when one considers that there is much debate and disagreement on the status of sensory knowledge between groups that identify themselves as Ashʿarites, Muʿtazilites, and falāsifa, but in some cases there are also important differences between the members of a same group.3 Jurjānī responds to this tradition as much as he belongs to it, and uses his Ashʿarite leanings to articulate his position in response to other views.

The second cluster of questions concerns the notion of certainty and probability as applied to knowledge. Throughout his account of knowledge, Jurjānī takes great care

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2 Some examples of his usage of the term ḥiss in the Sharḥ al-Tadhkira and their significance will be discussed in chapter five of this work.

3 See, e.g., the section “on establishing necessary knowledge” in Ījī, Mawāqif, vol. I, 131-195.
to highlight the nature of the epistemic strength of the various components of the knowledge-making process. Thus, notions of certainty and probability feature centrally in his account including the first principles of knowledge, the method leading to the conclusions, the types of assent and, ultimately, the very nature of knowledge itself. As such, they bespeak of his concern to evaluate knowledge and its components against a scale that measures the amount of confidence one ought to place in them. A fundamental issue is to understand whether or not definitive knowledge of nature is attainable according to Jurjānī, and, if so, how. A key initial inquiry in this respect is to understand the nature of certainty according to Jurjānī and the conditions that conduce to it. What is it that makes a proposition certain, and what are the methods of obtaining this certainty? The task also involves examining Jurjānī’s views on the conventional modes of arguments ranging from the conclusive to the probable, including standard varieties of medieval proofs such as demonstrations (burhān) and persuasive proofs. Such an inquiry is, of course, significant in its own right, but what adds further weight to its import is the fact that many such proofs are employed and explicitly cited by Jurjānī in order to formulate his judgments about astronomical matters, and even to demarcate the boundaries of astronomy vis-à-vis other disciplines. Indeed, without becoming familiar with Jurjānī’s understanding of proofs it is difficult to fully realize both the ontological significance of his astronomical conclusions and the measure of confidence

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4 This can most clearly be observed in his comments on the first station (mawqif) in his Sharḥ al-Mawāqif, which I discuss below in the next section of this chapter.

5 For examples and elaboration of this point, see ch. 5.
one ought to place on specific judgments, being as they are often a product of such proofs.

The third set of questions pertains to how knowledge relates to the notion of truth and reality. According to Jurjānī, there are truths, and so the central problem of truth is relatively simple to state: “what is the nature of truth,” and “what (if anything) makes it true.”⁶ In answering this question, Jurjānī, like most medieval authors, makes the “notion of truth part of a more thoroughgoing metaphysics and epistemology.”⁷ “Explaining the nature of truth” becomes then “an application of ... [his] metaphysical system,” and “truth inherits significant metaphysical presuppositions along the way.”⁸ Accordingly, the basic idea of truth as “conformity to fact” needs to be unpacked. What sort of ontological commitments are embedded in the relation of correspondence and the category of fact to which a belief corresponds? In examining Jurjānī’s response, we are presented with a highly original and, what would become, a hugely influential framework for understanding the “metaphysics of the fact.”⁹ One central aspect of this framework, as we shall see, is that not only does it accord clarity, but also offers a synthetic account of a host of ontological categories such as the external world, mental

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⁷ Ibid.

⁸ Ibid.

existence, and – by far the most important of all such ontic categories – *nafs al-amr* (lit., the thing itself). Such terms, not surprisingly, are frequently mentioned by Jurjānī in his astronomical works. More importantly, it is only in light of this framework that one can understand Jurjānī’s solution to the crucial question of how mathematical entities can relate to physical ones, and more generally, the ontological and epistemological status of mathematical entities and models.  

Moreover, knowing his theory of truth will also help us understand the kind of realism his truth embodies, and, thereby, shed light on the much-talked about issue of realism and anti-realism with respect to Jurjānī’s astronomy.  

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### 2.2 The *Kalām* Epistemological Context

Most of the discourse on the attainability of knowledge occurred in the fields of *kalām* (theology), *falsafa* (philosophy), and *tasawwuf* (Sufism), of which the first two are of particular relevance here due to their role in the interpretation of scientific

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10 See Ibid., where Fazlioğlu addresses this important question in the context of fifteenth-century Islamic developments in mathematics and natural philosophy, identifying Jurjānī as playing a key role in the then prevalent debates.

knowledge. Jurjānī’s views on the attainability of knowledge display a strong commitment to the post-classical Ash’arite, philosophical kalām, which itself, through the hands of Ghazālī and his successors, had critically, consciously, and creatively appropriated elements of falsafa. A distinctive feature of Jurjānī’s epistemology is a remarkably optimistic stance about man’s ability to gain true knowledge of nature that is based on a God-given capacity for reason. Of note is the positive manner in which Jurjānī understands the various methods (or methodologies) available for attaining definitive knowledge and the epistemological strength of certain cognitive faculties, other than the intellect, such as sense perception, estimation, and imagination. Equally significant is Jurjānī’s respect for probable and similar conclusions, which though lacking certainty, are accorded the rank of knowledge.

Jurjānī’s views on the attainability of knowledge are set out in his major theological-philosophical work, Sharḥ al-Mawāqif. There are a few key ideas here

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12 On a classic, though dated, overview of the centrality of “knowledge” (ʿilm) in various currents of Islamic thought, see Franz Rosenthal, Knowledge Triumphant: The Concept of Knowledge in Medieval Islam (Leiden: Brill, 2007) [original German version 1965, English translation 1975].


14 The views are contained in the first station (mawqif), entitled “Introductions” (muqaddama), which is divided into six observations (marṣad). For an English translation of the main text of Ījī, see the
playing a central role in Jurjānī’s epistemology, ideas which also bear direct significance for his thinking about different scientific disciplines. For the objectives of the following overview, we can limit our focus to three main topics:

1. Distinction between Two Kinds of Knowledge, and Inclusion of Probability
2. Confidence in Attaining Conclusive Knowledge of Nature
3. Certainty and Demonstrative Reasoning

2.3 Broadening the Scope of Knowledge to Include Probability

In his Sharḥ al-Mawāqīf, Jurjānī makes a distinction between two conceptually different uses of the word “knowledge.” Sometimes, knowledge refers to the essential nature of knowledge, and, in this sense, is taken to mean knowledge that is certain or without any doubt. More frequently, however, “knowledge” refers to the conventional usage of the word, and, in this sense, Jurjānī takes it to mean a general apprehension which includes both certainties and uncertainties.

The first sense of the word, where knowledge is understood as certain knowledge, is witnessed in the chapter entitled, “The definition of absolute knowledge.” 15 Here, Jurjānī begins by addressing the issue of the definition of knowledge proper, which he takes to be identical to understanding the essence


(māhiyya) of knowledge. Ījī brings six previous views on this question, each belonging to some notable personage or group, highlighting the weakness of each position, and, finally, ends by stating a seventh, his own view.\(^{16}\) In his commentary, Jurjānī follows Ījī in elaborating upon the weaknesses of the previous six views, including that of the philosophers, clarifies the several conditions in Ījī’s own definition, then goes on to providing what he considers to be the most excellent statement in this matter, void of the weaknesses or confusion present in previous views. Before looking at Jurjānī’s position, it is useful to consider his response to the definition favored by the philosophers.

According to the philosophers, knowledge means “the incidence of the form of the thing in the mind, irrespective whether the thing is a universal or a particular, existent or non-existent. Alternatively, it means the representation of the essence of the thing known in the soul of the knower.”\(^{17}\) Jurjānī, following Ījī, strongly objects to this

\(^{16}\) The six definitions of the essence of knowledge that have been given, including adherent(s) of that position, and Ījī’s objections to those definitions are as follows: (1) It consists in believing the thing to be as it is. However, this definition is not restrictive for it will include knowledge by \textit{taqlīd} (i.e., holding knowledge by intellectually affirming an authority) (Identified as the position of some Muʿtazilite scholars). (2) It is the knowledge of the known as it is, but this would exclude human knowledge of God and also involve circularity in definition (Qāḍī Abū Bakr al-Bāqillānī). (3) That which necessitates calling whomever it subsists in a knower or the apprehension of the object known as it is, but both variants involve circularity (Two views attributed to al-Shaykh al-Ashʿarī). (4) What is predicated of one in whom the perfection of action subsists, but this introduces the concept of power in the definition which excludes our knowledge from it since perfection does not enter into it, according to Ījī (Ibn Fūrak). (5) It is a firm conviction corresponding to what is necessary, but this includes conception (\textit{taṣawwur}), which is a form of knowledge (Imām Fakhr al-Dīn al-Rāzī). (6) The incidence of the form of the thing in the mind, or the representation of the essence of the thing known in the soul of the knower, but this includes notions like conjecture and imitation, and calling these notions knowledge conflicts with linguistic usage, custom, and religion (falāsifa). See \textit{Sharḥ al-Mawāqif}, 68-94.

\(^{17}\) \textit{Sharḥ al-Mawāqif}, 85; \textit{Anthology}, 255.
definition because it includes probable opinion (ẓann), compounded ignorance (al-jahl al-murakkab),18 and “knowledge acquired through authority” (taqlīd),19 as well as doubt (shakk) and imaginings (wahm). To consider these notions as a form of knowledge, which is what the philosophers hold, he continues, goes against the dictates of lexical usage (lugha), custom (ʿurf), and religious law (sharʿ).20 An individual is not properly called a knower of a thing when that individual has only probable opinion (ẓann) or doubts about it. But he adds that this dispute with the philosophers only pertains to the essential nature of knowledge; if, instead, what is meant is the conventional usage of the term “knowledge” then these notions can be included and there remains no disagreement.21

In the final passage of the chapter, Jurjānī states his own position on the definition of knowledge proper:

“Know that the most excellent statement from what has been said about uncovering the essence of knowledge is that it is a property with which the referred object becomes evident (yatajallā) for the one in whom it [i.e., the property] subsists. This is regardless whether the object is an existent or non-existent, possible or impossible, singular or compound, universal or particular. Making

18 Traditionally, ignorance (jahl) was divided into two kinds: simple ignorance (jahl basīṭ), which meant basic unawareness (e.g., “I don’t know”), and complex or compounded ignorance (jahl murakkab), which referred to a state when the original ignorance was exacerbated (e.g., when one says, “I know,” but in reality knows nothing). See, also, Wael Hallaq, Shari‘a (Cambridge: Cambridge University Press, 2012), 81, and Ayman Shihadeh, “The Argument from Ignorance and Its Critics in Medieval Arabic Thought,” Arabic Sciences and Philosophy 23 (2013): 171-220, esp. 180-1.

19 Taqlīd, as a technical Islamic legal concept, means an “intellectually independent affirmation of authority,” which involved various scales of “careful reasoning and interpretation,” and for which reason cannot simplistically be equated as “blind adherence to a doctrine.” See Wael Hallaq, Shari‘a, 113.

20 Sharḥ al-Mawāqif, 83.

21 Ibid.
manifest refers to a complete disclosure (*inkishāf tāmm*), meaning that it is a property which completely discloses the object for the one who subsists with it in a manner such that one possesses no doubts. Accordingly, it precludes probable opinion (*al-zann*) and compounded ignorance [since they possess doubt], and likewise excludes the correct conviction of an imitator because there in fact is a knot in the heart which does not allow for complete disclosure, nor an expansion that can untie the knot.”

It is clear that, for Jurjānī, essence of knowledge excludes all types of uncertainties, including doubts and imaginings, and, by implication, comprises only of judgments that are certain. A probable conclusion then does not strictly constitute as knowledge proper.

However, in presenting his more general theory of knowledge, Jurjānī typically resorts to a broader and more ordinary understanding of the term knowledge as a general apprehension (*idrāk mutlaq*). He traditionally divides this apprehension into two kinds: a conceptualization (*tasawwur*), which simply involves understanding the meaning or intention of a word or a statement, without making a judgment as to whether the “term refers” or the “statement is true;” and an assent (*taṣdīq*, or verification, literally “truth-making”), which involves both a conceptualization of a word or a statement in the mind, and a judgment. An important distinction between the two types, which is repeated by Jurjānī, is that an assent carries with it the possibility of

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22 Ibid., 93.

23 Ibid., 94.

truth and falsity since it is based on a judgment which can be true or false; however, conceptualization does not carry this possibility because by its very definition it stands independent of any judgment. The result is that an assent can include both judgments that are certain and those that are uncertain. As such, on this general understanding, knowledge is not just limited to certain conclusions but, can include probable judgments also.

The epistemic dichotomy of certainty and probability occupies a central place in Jurjānī’s theoretical understanding of knowledge, one that he frequently cites throughout his work, and one that, as we shall see later, also shapes his thinking about astronomy. As an epistemic attitude towards knowledge, certainty was not a “matter of degree.” It conveyed full conviction and defined the highest category of knowledge in terms of epistemological confidence in the “widely shared medieval ranking” of “doxological firmness” – one which was also shared by Jurjānī. Ẓann (or probability),

25 Ibid., 94-7.
28 On the importance of certainty and probability in Islamic intellectual thought, see Hallaq, Shari’a, 80-1, and idem, A History of Islamic Legal Theories: An Introduction to Sunnī Usūl al-fiqh (Cambridge: Cambridge University Press, 1997), 38-9. He explains that the epistemic dichotomy of certainty (qaṭʿī)/probability (ẓannī) occupied the “heart of Islamic theoretical discourse” and shaped the intellectual world of “both Sunnite and Shīʿite jurists for over a millennium” (Shari’a, 80). Moreover, while certainty (al-yaqīn/al-qaṭʿ) is “not a matter of degree,” probability may be. He continues, “In the jargon of the Muslim jurists, to say that something is probable (ẓannī) is to mean that the possibility of its being true is in excess of 0.5, when certainty is 1.0. If the truth of a proposition is thought to be ẓannī, supporting or circumstantial evidence may increase the chances that it is true, thus elevating its probability to a higher degree. Depending on the quality and strength of evidence, the probability may be
on the other hand, represented a state of belief where the confidence in the truth of a proposition was preponderant, but where the person holding it thought that it could be wrong.\textsuperscript{29} The thought, at least in part, arises from an awareness that the judgment might be otherwise. Unlike certainty, \textit{ẓann} is understood in degrees.\textsuperscript{30} Categorizing knowledge in a descriptive terminology, it covered a broad spectrum ranging from a proposition being probable (\textit{ẓann}), highly probable (\textit{ghalabat al-ẓann}), to “probable bordering on certainty.”\textsuperscript{31}

For Jurjānī, though, the essence (\textit{māhiyya}) of knowledge is characterized by knowledge possessing the quality of certitude; more frequently, however, he uses the

\begin{itemize}
\item moderately increased, in which case it is termed \textit{ghalabat al-ẓann}, or it may be increased to such an extent that it may be “bordering on certainty,” in which event it is known as \textit{al-ẓann al-mutākhim li’l-yaqīn}. Other intermediate degrees of probability are also distinguished. Though the issues of certainty and probability dominated legal discourse, the jurists distinguished at least two other categories of knowledge, namely, doubt (\textit{shakk}) and ignorance (\textit{jahl}). Doubt represents a state of knowledge where the probability in favor of the truth, say, of a proposition, is precisely equal to the probability of its being false. Ignorance, however, is believing something to be what it is not – it is plainly a state of error.” See Hallaq, \textit{A History}, 39.
\end{itemize}

\textsuperscript{29} For the Sunnī jurists, the “statistical probability of \textit{ẓann} was certainly above half.” See Hallaq, \textit{Law and Legal Theory in Classical and Medieval Islam} (Aldershot: Ashgate, 2000), p. ii, n. 44 (who writes that “according to Ghazālī, \textit{ẓann} occurs when the soul is inclined to believe something but senses the existence of its opposite (”wa-yakūnu li’l-nafsi sukūnun ilā al-shayʾi wa-al-taṣdīqu bihi wa-hiya tashʿuru binaqīḍihi ... wa-hādha yusammā ẓannan”). See his \textit{Mustasfa}, 1:44, II. 3-4. Therefore, the lowest degree of probability in \textit{ẓann} is greater than 0.5”).

\textsuperscript{30} W. Hallaq, \textit{A History}, 39.

\textsuperscript{31} Ibid. The Muslim scholars and jurists typically used the terms \textit{al-ẓann} and \textit{al-yaqīn (or al-qat‘)} to indicate probable knowledge and conclusive/certain knowledge respectively. In the debate over the yield of hadīths, the term \textit{iḥm} denoted certain knowledge (i.e., equivalent to the epistemological strength of the Qurʾān in deriving law and dogma) and \textit{ẓann} meant probable knowledge (i.e., sufficient only for deriving substantive law not dogma). See Jonathan Brown, \textit{The Canonization of al-Bukhārī and Muslim: The Formation and Function of the Sunni Hadith Canon} (Leiden: Brill, 2007), 183-4, n. 116. For a discussion of the “epistemological yield of different hadīths” (e.g., \textit{mutawātir}, \textit{mashhūr} and \textit{āḥād} hadīths), see Wael Hallaq, “On Inductive Corroboration, Probability and Certainty in Sunni Legal Thought,” in \textit{Islamic Law and Jurisprudence}, ed. Nicholas Heer (Seattle: University of Washington Press, 1990), 3-31; idem, “The Authenticity of Prophetic Hadith: a Pseudo-probleem,” \textit{Studia Islamica} 89 (1999): 75-90, esp. 80-1.
word knowledge to include probable knowledge. This is witnessed first when he characterizes knowledge as a general apprehension in order to include uncertainties, whose result is to conceptually divide knowledge into two kinds: conclusive (qaṭʿī) and probable (ẓanni) knowledge. Accordingly, knowledge is said to include two kinds of assent, those that are certain (al-taṣdīqāt al-yaqīniyya) and those that are not certain, or are probable (al-taṣdīqāt al-ghayr al-yaqīniyya). Depending on whether the desired goal is a conclusive or a probable assent, the method whereby such an assent is acquired, Jurjānī claims, is also conceptually different. The method leading to a conclusive assent, he maintains, has been variously referred to as a proof (dalīl), or, more specifically, conclusive proof (qaṭʿī), or, by a term he also seems to prefer, demonstration (burhān). On the other hand, the method conducing to a probable assent, he continues, is called a probable proof, or, more appropriately, sign (amāra).

Finally, knowledge ultimately is constructed from certain fundamental premises that are utilized in proofs, which, for Jurjānī, can again be divided into two types. The first type is categorical or conclusive premises (qaṭʿiyya), also known as first principles of a science, which are used in conclusive proofs. The second type is probable premises which are only used in signs or a probable proof, and into which can be lumped granted

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32 Sharḥ al-Mawāqif, 94 (“knowledge, i.e., general apprehension, so that it comprises of probabilities (ẓanniyāt) also”).
33 See the ḥāshiya (gloss) by Sīyālkhūṭī who makes this point. Ibid.
34 Ibid., vol. 2, 3-4.
36 Ibid., 37.
(musallamât), widely-known (mashhûrât), commonly-accepted (maqbûlât) beliefs and contextual observations (maqrûna bîl-qarânîn), such as rain falling due to the existence of rainy clouds.\textsuperscript{37} As such, for Jurjânî, the dichotomy of certainty/probability applies at every stage in the process of attaining knowledge: conclusive premises are used in conclusive proofs which in turn are utilized in speculation (naẓâr) to reach a conclusive assent and ultimately conclusive knowledge, whereas probable premises are used in signs which in turn conduce to a probable assent and ultimately probable knowledge.

That Jurjânî can conceptually and systematically parse knowledge into conclusive and probable, and accord prominence to both in his theoretical understanding of knowledge, forms a significant point. One must not misunderstand the status of ẓann for Jurjânî. It is indeed knowledge.\textsuperscript{38} Unlike someone such as, say, Ibn Sînâ,\textsuperscript{39} Jurjânî does not make certitude a necessary condition for knowledge, but recognizes probable conclusions as a lesser but still respectable category of knowledge. As a contemporary

\textsuperscript{37} Ibid., 43-4.

\textsuperscript{38} See Christophe Greillard, “Nicholas of Autrecourt,” in Encyclopedia of Medieval Philosophy: Philosophy Between 500 and 1500, ed. Henrik Lagerlund (London, New York: Springer, 2011): 876-878, 877 (who makes a similar point about the epistemology of Nicholas of Autrecourt, a notable Latin scholastic: “One must not misunderstand the status of probability, it is indeed knowledge. Unlike most medieval thinkers, Nicholas of Autrecourt does not make evidentness a necessary condition for knowledge”)

\textsuperscript{39} Ibn Sînâ took knowledge or scientific understanding to mean certain knowledge, and he clearly took his explicit goal to be an assent that is certain. In his Kitâb Burhân (Book of Demonstration), he writes: “The goal of this book is to provide a means for acquiring assent that is certain and the true and real concepts, and so the benefit of the book is obvious, namely, to arrive at the sciences occasioning certainty and the true and the real concepts beneficial to us.” Quoted in Jon McGinnis, “Avicenna’s Naturalized Epistemology and Scientific Method,” in The Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and their Interactions, eds. Shahid Rahman, Tony Street and Hassan Tahirî (Springer, 2008): 129-152, 131, which offers a useful evaluation of Ibn Sînâ’s scientific method.
scholar puts it, “sufficiently argued propositions, justified by reasonable proofs such as an argument for convergence, or by partial experiences such as induction ... are only probable, but are nevertheless knowledge if they are more probable than the opposite proposition.”\textsuperscript{40} As such, the inclusion of probable knowledge marks an important move, whose result – if not intention – is to accord respect to those fields of inquiries where “human fallibility” or the unobservable nature of the subject matter meant that humans had to abandon the search for demonstrative arguments, appealing instead to ones which are probable, in the sense of having weight but being inconclusive.\textsuperscript{41} The “scope of this domain was enormous” ranging from “dialectical argumentation” and syllogisms, to claims made in theology and Islamic legal theory, and in sciences such as astronomy and medicine, where often one only had access to and had to be content with probable conclusions.\textsuperscript{42} Indeed, as we shall see later, it is precisely this conception of approximate knowledge, comprising of probable or plausible opinions, that will form the more typical, but also a respectable ideal of astronomical knowledge for Jurjānī.\textsuperscript{43}

\textsuperscript{40} Christophe Greillard, “Nicholas of Autrecourt,” 877.

\textsuperscript{41} Rudolf Schuessler, “Probability in Medieval and Renaissance Philosophy.”

\textsuperscript{42} Ibid.

\textsuperscript{43} N. Jardine, “The Forging of Modern Realism,” 168 (who makes a similar point concerning Kepler).
2.4 Confidence in Attaining Conclusive Knowledge of Nature

Any epistemology must include an account of whether knowledge of nature is accessible to man. Here Jurjānī plainly operates within the ambit of the standard kalām epistemological discussions, explicitly rejecting the extreme skeptical claim that no knowledge of nature is attainable. On the contrary, knowledge, for him, is not simply attainable, but it also does not always have to be of a meager variety; rather it can be definitive. This idea is clearly observed in his stance towards two key issues: (1) the status of knowledge attained by means of sense perceptions (or sensory knowledge), and (2) the various kinds of categorical premises.

2.4.1 Status of Sensory Knowledge

According to the commonplace epistemological distinction in kalām, human knowledge can be divided in terms of whether it is necessary (ḍarūrī) or acquired (muktasab).44 Necessary knowledge (or science) is what clings to the soul of a person in a way that one cannot disengage from it, such as “my knowledge that I exist and that a thing cannot be, at once, living and dead, or pre-eternal and created.”45 Acquired (or discursive) knowledge, on the other hand, is attained through inference and reasoning;46 “unlike necessary knowledge, it does not grip the mind.”47 One must recognize that for

46 Ibid.
47 W.Hallaq, A History of Islamic Legal Theories, 38. See also Sharḥ al-Mawāqif, vol. I, 98.
the *mutakallimūn*, including Jurjānī, while there was hardly any dispute on the need to vindicate the necessary sciences, there clearly was a lot of disagreement regarding what could, legitimately, be considered “necessary” knowledge. In particular, an issue that features centrally in the *Mawāqif* is the status of sensory knowledge and self-evident truths. On this question, the spectrum of positions was varied, ranging broadly across four views: those who recognize both as valid categories of necessary knowledge; those who are critical of sensory knowledge only; those who are critical of self-evident truths only; and finally, those who are critical of both categories. Jurjānī is fully aware of the debates; his own unambiguous position, like Ījī’s, is the first.

For Jurjānī, who is following Ījī, necessary knowledge includes three categories: feelings (*wijdāniyyāt*), sensory knowledge (*ḥissiyyāt*), and self-evident truths (*badīhiyyāt*). Feelings refer to all that we come to discover within ourselves through our conscience or our internal faculties, for example, my knowledge of myself or being in pain or angry or feeling scared. However, because feelings are general and cannot be used in an argument against others, he considers them to be of little use in the sciences; they also generate little controversy. By sensory knowledge, Jurjānī means knowledge that is dependent on the senses. It is important to note that he does not restrict it as based solely on sense perceptions (*ḥiss*) alone; rather, he understands it in a

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48 Ibid., 131-196.
49 Ibid., 131.
50 Ibid.
broad sense to include experiences (al-tajribiyat), corroborated reports (al-mutawatirat), and judgments of the imagination (al-wahm) pertaining to the sensory objects (al-mahsusat), to intuitions (al-hadisyat) and to perceptible entities (al-mushahadat). Each of these categories of sensory knowledge, as he will explain later, is based on sense perceptions but also contain a non-sensory element. He continues that, unlike feelings, both sensory knowledge and self-evident truths can be used in arguments against others. The only difference is that self-evident truths can be used in general, whereas sensory knowledge can only be used when what they share, in terms of cause, is known, as is required in a methodic experience, intuition, or corroborated reports.

It is worth noting that Jurjanī recognizes both sensory knowledge and self-evident truths as more than just valid and reliable categories of knowledge. In fact, they serve as the building blocks for the very foundation of sciences (humā al-ʿumda fī al-ʿulūm). Moreover, upholding both categories is not simply his preferred view, but rather the only correct view. Those who adhere to this position, he says, are the majority, and they are “on the established truth and on the straight path which leads towards the religious beliefs and towards all sure objectives.” In order to further

51 Ibid.
52 Ibid., 132.
53 Ibid.
54 Ibid., 133.
55 Ibid.
reinforce his claim, he proceeds to discuss other views which deny either sensory knowledge or self-evident truths or both, and responds to their objections and doubts. Among the issues he discusses, the most significant and pertinent is his response to those who are critical of sensory knowledge.

2.4.1.1 Response Against the Critics of Sensory Knowledge

Ījī had attributed the critical stance against sensory knowledge to Plato, Aristotle, Ptolemy, Galen and generally to the philosophers who followed them in their sciences. Jurjānī considers that their objection that sensory knowledge (ḥissiyyāt) is not certain (ghayr yaqīnī) can perhaps be taken to mean that rational conviction about sensory knowledge is not due to sense perception alone, but together with other things conjoined to it, which then force the mind to assert them with conviction. And they may state that, however, since we do not know what these things are and when or how they arise, we consider sensory knowledge when based on sense perceptions alone to be dubious.56 Jurjānī himself voices that if this is the meaning of their objection, then there remains no disagreement, since “sensory knowledge based on sense perceptions alone are not certain, and that this is a truth in which there is no doubt (ḥādhā ḥaqqun lā shubhata fīhi).”57 On the other hand, if the philosophers do not intend this meaning by their objection, that is to say they maintain that sensory knowledge is dubious

56 Ibid., 133-4.
57 Ibid., 134.
regardless of whether it is based on sense perceptions alone or conjoined with other
matters, then, Jurjānī retorts, their objection can be extended so as to make their own
sciences unreliable. In a passage which is worth quoting in full for its clarity, he states:

“If the interpretation we have mentioned is not the intended
meaning of their criticism against sensory knowledge, then towards
sensory knowledge will their sciences terminate. Consequently, the
essential criticism levied against sensory knowledge will become a
criticism against their own sciences which they take pride in. This
cannot be conceived from someone possessing even a weak
intellect, so how can one conceive this from these great
intellectuals? Indeed, we say that their sciences terminate with
sensory knowledge because the science of divinity attributed to
Plato is based upon seeking proofs by means of the conditions of
the known, sensory objects by aid of sense perception. Many
principles of natural philosophy attributed to Aristotle, for
example, the science of heavens and the universe, of generation
and corruption, of the effects of superior bodies, of judgments of
minerals, plants and animals, are taken from sense perception. The
science of observations and astronomy attributed to Ptolemy is
based upon sense perceptions and judgments of sensory objects.
The science of empirical medicine attributed to Galen is taken from
these sensory objects. In fact, they have said that the necessary
primary principles are acquired by babies by a capacity which itself
is acquired for their minds by sense perceptions of the particulars.
Thus, criticism against sensory knowledge can be taken to mean a
criticism against self-evident truths.” 58

After providing his initial response to the critics of sensory knowledge, Jurjānī
proceeds to consider the actual objection of this group. They raise the objection that
there is no reliability in the judgment of the senses, irrespective of whether the
judgment is universal or particular. 59 As for the universals, it is clear that the senses

58 Ibid.
59 Ibid., 134-5.
cannot encompass them, for one can only perceive a fire burning presently, for
example, and not all the individual fires that occur or have occurred in the present, past
and/or future. As for the particular entities, the senses cannot encompass them because
they are very often mistaken in their judgment. The judgment of the senses may be
different from reality because we may see the small as large (grape appearing like a
pear), the one as many (such as the moon if we look at it while blinking), the stationary
as moving (those on the ship see the ship as stationary while it is moving and the
coastline moving while it is stationary), the non-existent as appearing to exist (such as in
the case of a mirage), and so on.60

Next, Jurjānī responds to the objection. He states that their discussion indicates
that the judgment of the senses has no reliability in the universals, nor in the particulars.
That is to say, reason should not affirm a universal or particular judgment by means of
sensory perceptions alone. This, Jurjānī says, is precisely what we believe.61 Rational
certitude is not acquired in universals, nor in particulars by means of sensory
perceptions based on the sensory organs alone.62 Instead, he continues, it is necessary
that there be some other matters along with it which necessitate certainty.63 However,
if in some cases such matters are not present, then the intellect cannot acquire
certainty, and the possibility of error will stand in such a case. On the other hand, the

60 Ibid., 134-43.
61 Ibid., 152.
62 Ibid.
63 Ibid.
conclusion which Jurjānī explicitly rejects is that there can be no certainty, even in a rational affirmation, about the sensory objects that is acquired by conjoining sense perceptions with other matters that conduce to certainty.\(^{64}\) Clearly frustrated by this view, he asks rhetorically: why wouldn’t there be any certainty in our statement such as, the “sun gives light,” or that the “fire is hot,” despite that immediacy testifies towards its strength and denies the chance of error.\(^{65}\)

To summarize, Jurjānī’s response makes two points. First, he admits that judgments based on sense perceptions, in so far as they are based on sense perceptions alone, are only probable since they possess a chance of error. Second, sensory error in some images does not negate or contradict their exact correspondence in many other images such as the aforementioned judgments, the sun is shining and the fire is hot. As a rule, judgments based on sense perceptions can be certain when they are conjoined with ‘additional things’ in a way that causes the mind to be absolutely sure that there is no mistake here, without the need of reflection, although this may be by the help of things that are not known in detail. As we shall see in the next section, what he understands by these additional things is a particular rational activity of the mind to form judgments by a consideration of the causes of phenomena.

\(^{64}\) Ibid.

\(^{65}\) Ibid., 152.
2.4.2 Seven Methodologies to Attain Categorical Premises

Another instance that reflects Jurjānī’s confidence in the attainability of certain knowledge is his understanding of premises that function in proofs and eventually lead to knowledge. For Jurjānī, who is following Ījī, in addition to probable (or doubtful) premises, one also has access to certain kinds of definitive premises, which are premises that are categorical (qaṭʿī), certain (yaqīnī), and indispensable, and upon which demonstrations can be based. These refer to the so-called first principles of science, which possess a rich discussion history going back to Ibn Sīnā, and ultimately to Aristotle himself. Drawing on the post-Avicennian history of its retentions and transformations at the hands of the mutakallimūn, Jurjānī, following Ījī, lists and clarifies seven kinds of categorical, certain premises – or, alternatively, seven ways in which one may acquire the first principles of a science. These are:

1. Primary notions (awwaliyyāt) from which the soul is never devoid, once conception of both terms has taken place.

2. Propositions whose deduction is built into them: this includes mathematical truths as well as certain general principles common to all disciplines. For example, we can be sure that four is even because it is divisible into two equal parts, and that the whole is greater than its proper parts.

3. Perceptible entities (mushāhadāt), or what reason judges of upon pure perception.

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67 Ibid., 37-42. For the below list, I utilize the translation of this section by Majid Fakhry in An Anthology of Philosophy in Persia, volume 3, 282.
4. Experiences (mujarrabāt), or what reason judges of through repeated perceptions.

5. Intuitions (ḥadsiyyāt), such as the artist’s knowledge of the perfection of his work.

6. Corroborated reports (mutawātirāt), or what is judged of on the basis of the reports of a group who cannot possibly concur in error.

7. Imaginable objects of perception (wahmiyyāt fī al-maḥsūsāt), such as that each body must be to one side.

Of these seven kinds, four types in particular are explained by Jurjānī with instructive additions: perceptible entities, experiences, intuitions, and imaginable objects of perception. Unlike true conceptions (first type) or mathematical truths (second type), these directly relate to the attainability of knowledge of nature by means of sense perception. As such, his explanation also sheds additional light on the earlier issue of sensible knowledge.

2.4.2.1 Perceptible Entities (Mushāhadāt)

Ījī defines perceptible entities as knowledge which is generated when reason judges upon pure sense perceptions. Jurjānī first clarifies that the word “pure” is meant to exclude additional conditions such as repeated perceptions or intuition. He elaborates that this perception can either be by means of visible senses, in which case it is called the data of senses (maḥsūsāt, sensory objects), such as the judgment that the

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68 Ibid., 38.
69 Ibid.
“sun is shining” and that “the fire is hot.” Otherwise, the perception will be by means of inner senses, in which case it is called the data of consciousness (wijdān, feelings) or beliefs (iʿtiqād), such as deciding that we have fear or anger. Given that the deliverance of sense perception is always a particular judgment, for example “this fire is hot,” the central issue concerns how one can move from a particular judgment to a universal statement, such as “fire is hot.” The key to the solution, according to Jurjānī, lies in recognizing that there exists some causal relation between fire and hotness, such that it mirrors the actual nature of reality. He explains:

> “Know that sense perception can convey only a particular judgment, for example, your statement that ‘this fire is hot’. However, the judgment that ‘every fire is hot’ is sought by means of sense perceptions of many particulars along with attending to the cause (al-wuqūf ʿala al-ʿilla). Possibly (laʿalla), sensory perceptions of the particulars may prepare the soul for accepting a universal proposition from the emanative principle (al-mabdaʾ al-fayyāḏ). There is no doubt that these [particular] sense perceptions, if they are correct, lead towards certainty (yaqīn). However, if it is not the case that the mind can distinguish between real (ḥaqq) and unreal (bāṭil) sense perceptions, then it cannot distinguish the correct from the erroneous.”

The passage emphasizes a few points. First, deliverances of sense perceptions are partial judgments because they only provide knowledge that this particular fire is hot; universal judgments are not based upon them. In order to attain a universal

\[\text{\textsuperscript{70} Ibid.}\]
\[\text{\textsuperscript{71} Ibid., 38-9.}\]
\[\text{\textsuperscript{72} The points mentioned in this paragraph are largely an adaptation of Jon McGinnis’s explanation of Ibn Sinā’s pertinent views. See, especially, McGinnis, Avicenna, ch. 3; and idem, “Avicenna’s Naturalized Epistemology and Scientific Method.”}\]
judgment that is certain, it must reflect a causal relation, and Jurjānī, like Ibn Sīnā before him, takes it to be given that there are such causal relations in the world. Knowledge of a causal relation is sought by the mind by means of sensing many particulars. It is worth noting that he acknowledges the role of the mind in furnishing us with universal statements. Yet, while the search for a cause is performed by the human mind, the mind itself is called to the task by a pure empirical inquiry of sensing many instances of a particular judgment. Moreover, it is also clear that a sensory judgment cannot be confirmed simply by sensing because one cannot rely on the confirmation of senses alone as they admit of error and thus are only probable. Instead, the mind confirms a sensory judgment by both sensing and attending to the cause, thereby imparting certainty. For Jurjānī, depending on whether one attends to the causal relation or not, one can differentiate between a certain and a probable sensory judgment. This point will become particularly relevant when we turn to his view of astronomy, according to which some astronomical conclusions are certain, or beyond any doubt. In such cases


then, astronomy will not simply be ‘saving the phenomena’, but rather be providing some truth about the real world.

In passing, one may note that in considering the cognitive process by which the mind attains certitude in universal propositions, Jurjānī presents a stock idea, according to which particular perception in many instances may prepare the soul for ultimately receiving the universal from beyond the knower’s mind. Beyond stating this idea as a possibility, he does not elaborate.\textsuperscript{76} For one thing, in an earlier chapter regarding the manner in which rational speculation imparts knowledge, Jurjānī recognizes the stark disagreements among the Ashʿarites, Muʿtazilites, and the philosophers.\textsuperscript{77} It appears that, for Jurjānī, the question of details of the cognitive process was largely an intractable one. This may also help explain his earlier, rather abstruse, statement about sensory knowledge. According to Jurjānī, rational conviction in the mind arises when pure sense perceptions are conjoined with other things, even if we do not know what these things are and when or how they arise. In short, Jurjānī’s position (and more immediate concern) appears to be that we may find ourselves with judgments that we are certain about, and while this knowledge arises within us ultimately through a

\textsuperscript{76} Although Jurjānī rejects the Active Intellect theory of Ibn Sīnā (see next chapter), but it remains unclear whether the soul receives the intelligibles directly from God, or through the intermediary of, what he sometimes refers to as the noble, angelic souls (\textit{arwāḥ muqaddasa}). One instance which seems to suggest the latter position occurs at the beginning of his \textit{Sharḥ al-Tadhkira}, fol. 2a.

\textsuperscript{77} See \textit{Sharḥ al-Mawāqif}, vol. 1, 248-55. The section outlines four views on the manner in which theoretical reflection imparts knowledge. 1) Ashʿarites (matter of habit), 2) Muʿtazilites (knowledge results by \textit{tawallud} or generation), 3) Philosophers (knowledge depends on innate dispositions), and 4) Rāzī (knowledge is necessary, but not generated).
psychological and cognitive process, we may not have a definitive explanation of that process. Yet, not having a precise explanation does not seem to be of concern to Jurjānī, as long as he is able to present a plausible account that vindicates the necessity and certainty of sensory knowledge.

2.4.2.2 Experiences (*Mujarrabāt*)

Ījī defines experiences as “what the mind judges of through repeated perceptions.”\(^78\) Again, Jurjānī first offers a clarification that the condition of repetition is meant to differentiate it from perceptible entities. One may pose the key issue here as follows: it is of course true that repeated perceptions can simply be a co-incidental pattern, in which case, it is possible that the pattern might break in the future, thereby denying the certitude of the judgment. How is it then that the data of experiences conduce to certainty? According to Jurjānī, the solution lies in recognizing that in addition to repeated observations, the mind also judges through a hidden syllogism (*qiyās khafī*) that imparts certainty to observation.\(^79\) The syllogism, he explains, is that the recurrent happening on the same pattern is not co-incidental, but must have a cause

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\(^{79}\) *Sharḥ al-Mawāqif*, vol. 2, 39. See also McGinnis, *Avicenna*, 50 (“The regularity of the observation provides the basis for a hidden syllogism, claims Avicenna, namely that whenever two things always occur together without any falsifying instance there must be a cause relating those two things, and since these two things regularly occur together, there must be a cause relating them’

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(sabab)\textsuperscript{80} even if its quiddity (māhiyya) is not known.\textsuperscript{81} In other words, it does not purport to explain what the causal relation is between the terms, but only to identify that there is a causal relation.\textsuperscript{82} It follows, he continues, that whenever we know that the cause is present, one can judge with certainty that the effect is also present. For example, he says, we can judge that hitting an individual with wood is painful, and that scammony heals the gall-bladder.\textsuperscript{83} Again, it is worth noting that, similar to perceptible entities, judgments based on experience also attain certainty when one recognizes that a causal mechanism underlies the repeated observations.

2.4.2.3 Intuitions (Ḥadsiyyāt)

For Jurjānī, intuition, as a kind of first principle, refers to “propositions which the mind judges by strong intuition (ḥads qawī) from the soul with which doubt is eliminated, and certainty is obtained by seeing correlation.”\textsuperscript{84} He gives the example that

\textsuperscript{80} We have to be aware of the difference between sabab and ʿilla. Although both can be rendered as cause, they refer to two different concepts. Both are accidents, but whereas sabab generates another accident, the ʿilla only causes something to have a certain quality. The ʿilla is not used to bring something into existence, but only is the reason why something is entitled to a particular qualification. See J. R. T. M. Peters, God’s Created Speech: A Study in the Speculative Theology of the Muʿtazilī Qādī l-Quḍāt Abū l-Ḥasan ‘Abd al-Jabbār bin Aḥmad al-Ḥamdānī (Leiden: Brill, 1976), 208.

\textsuperscript{81} Sharḥ al-Mawāqif, vol. 2, 39.

\textsuperscript{82} McGinnis, Avicenna, 50-1 (“Methodic experience has not explained what this causal relation is, but it has established that there is such a relation”).

\textsuperscript{83} Ibid.

\textsuperscript{84} Ibid., 39-40. For a detailed study of ḥads in Ibn Sinā, see D. Gutas, “Intuition and Thinking: The Evolving Structure of Avicenna’s Epistemology” in Aspects of Avicenna, ed. R. Wisnovsky (Princeton, NJ: Markus Wiener Publishers, 2001): 1–38 (Gutas identifies a version of ḥads in which the middle term of the syllogism could be acquired instantaneously or through discursive thinking (fikr). See, also, McGinnis, “Avicenna’s Naturalized Epistemology” (“neither ’intuition’ nor ’insight’ properly captures the sense of ḥads, which more correctly is a quick, though clean, heuristic by means of which one correctly identifies
we intuit that the light of the moon is derived from the sun because we see the changes of the forms of its light according to its different positions in relation to the sun. The point to note here is that intuited premises will acquire certitude only if they are based on “strong” intuitions. Otherwise, if the intuition is not of that strength, the premises would cease to be among the certainties and include probabilities.

Clarifying what the nature of strong intuition is, Jurjānī initially likens it to the data of experiences. Similar to experiences, intuitions are also derived from recurrent observations and the comparison of hidden syllogism. However, the difference between the two, he claims, is that the cause in experience is known to be a cause, but its quiddity is unknown, whereas in intuition both aspects are known.\(^85\)

What is conjoined, Jurjānī continues, with experience is a single syllogism, which means if it did not have a cause, it will not hold always, or for the majority of the time. On the other hand, what is conjoined with intuition are different syllogisms with respect to differences in the causes in its quiddities. These different syllogisms can be understood by, for example, the way that we see the changes of the forms of the moon’s light is related to the various positions relative to the sun; we see that the side of the moon that is facing the sun is always illuminated, and that its light changes according to how it is facing the sun.

\(^85\) **Sharḥ al-Mawāqif**, vol. 2, 40.
Based on these syllogisms, the mind intuits and concludes that the light of the moon is derived from the sun, for if this was not true then the situation would not be as it is.86

2.4.2.4 Imaginable Objects of Perception (Wahmiyyāt fī al-maḥṣūsāt)

The final kind refers to the case where premises are attained through one’s faculty of estimation87 when making a judgment concerning sensible objects. Jurjānī explains:

“The judgment of the estimation (wahm) with respect to sensibles is true. For example, “each body must be to one side.” This is because the intellect (al-ʿaql) is true for it in its judgments with respect to the sensibles. And due to their conformity, the sciences such as geometry are extremely clear. There hardly ever occurs in it any disagreement like that which occurs in other sciences. Contrary to this is its judgment with respect to abstract objects and purely intelligible objects. This is because when one judges them by means of judgments of sensible objects, its judgment there will be false, for instance, its judgment that, “it is necessary that every existent must be to one side or in a place.” 88

There are a few points that must be emphasized. According to Jurjānī, the faculty of estimation can also provide sure conclusions, provided it judges sensible things because here its judgment will conform to the judgment of the human intellect. In other words, human intellect is not the only means through which one can attain conclusive knowledge, but even other cognitive capacities like estimation and imagination can also

86 Ibid.
lead to certitude. This functions as a key idea in Jurjānī’s attempt to shore up other avenues of knowing which do not rely on the human intellect. Moreover, he includes geometrical truths in this category, which is a significant point. Geometrical thinking (one may generalize to include mathematical thinking as well) originates from estimation, not from human intellect itself. Yet it can still be certain, since its judgments conform to those of the intellect. As we shall see later, it is precisely this understanding of estimation as a faculty which can provide certain knowledge that will provide the key philosophical foundation on which Jurjānī will mount his defense of mathematical knowledge against skeptical attacks.

At the end, Jurjānī turns to the kind of knowledge attained by each of the above seven methodologies. As for knowledge acquired through (1) the primary conceptions, (2) propositions whose deduction is built into them, (3) perceptible entities, and (4) the imaginable objects of perception, Jurjānī states that it is not only certain for the individual who stands with these judgments, but it also constitutes binding proof for others.\(^9^9\) Among the four, he, however, does relatively rank them, in the same order, in terms of the consideration of which is most gripping.\(^9^0\) Again, it is worth pointing out that Jurjānī is attributing this kind of absolute or unconditional certainty to the judgments of both sense perceptions and estimation, thereby greatly elevating the authority of the disciplines that rely on them. As for the knowledge acquired through (1)
intuition, (2) experience, and (3) corroborated reports, Jurjānī is quite insistent that although the knowledge so obtained is certain, the certainty in question is only “conditional certainty” and applies only to one who stands with the intuition, not to others, unless they too, share that same intuition.⁹¹ He writes:

“As for experiences, intuitions and corroborated reports, they constitute a proof for someone who stands with them, but not for others except when others share in those matters belonging from experience, intuition and corroborated reports which lead towards such knowledge. Accordingly, it is not possible that we suffice ourselves by denying them by way of raising objection.”⁹²

Although intuitions or experiences do not constitute binding proof for others who do not stand with them, what they provide, Jurjānī warns, is still respectable knowledge; they cannot simply be rejected or be held as doubtful.

Both Jurjānī’s conception of sensory knowledge, and of the various kinds of categorical premises, support the key point that, according to him, one can attain definitive knowledge. This knowledge is not simply confined to mathematical or self-

⁹¹ Cf. McGinnis, *Avicenna*, 51 (“As for the knowledge acquired through methodic experience, Avicenna is quite insistent that although the knowledge so obtained is necessary, the necessity in question is only conditional necessity and applies only to the domain under which the examination was made”).

⁹² Ibid., 42. Elsewhere in the work, Jurjānī provides two more instances pertaining to ḥads that convey the same point as being made here, that is, the conditional authority it enjoys. (1) Ḥads will not be binding proof on others: “Perhaps it is said: By inducting from some particulars along with a strong intuition in illuminative minds, one can convey certitude regarding the fact that sound is the effect for the vibration of air upon a specific way. And this is the case in many intellectual problems which take the help of intuition. The correct ruling is that it does not constitute a binding proof for others despite that it is known to be certain.” See Ibid., (Dār al-Jīl edition), vol. 2, 3. (2) Signs (al-amāra) convey probability, whereas demonstration (burhān) conveys certitude: “The author (Ījī) said that: Know that signs when they are many and gather together, they become persuasive for the nafs and convey the benefit of certainty given by intuition (yaqīnan ḥadsiyān). However they are certain for one who stands with them, not for others unless they share that same intuition.” See Ibid., (Dār jīl edition), vol. 1, 580.
evident truths, but includes knowledge of nature attained through observations, experiences, intuitions, and imaginations as well. The upshot of his epistemology is a markedly enthusiastic stance on the attainability of knowledge of the world. Moreover, an important result—if not intention—of his undertaking is to shore up alternative routes to knowledge, ones that, to varying degrees, are independent of the intellect. In the subsequent chapters, this theme will reappear, more concretely, in at least two ways: first, in his understanding of truth, he will dissociate himself from the traditional account that ties truth with conformity to the forms present in the Active Intellect; and second, in his defense of mathematical sciences, he will emphasize that, although such thinking may originate from the estimation, it can still provide sure judgments and describe a certain kind of reality.

2.5 Certitude and Demonstrative Reasoning

For Jurjānī, certainty is not simply a quality possible for knowledge, but rather functions for him, as for others, as a key epistemological concept, its centrality to general epistemological thinking in the post-classical period arising largely as a consequence of the appropriation of Avicennian logic in the legal and theological discourse. As Jon McGinnis has drawn attention in his study on Ibn Sinā, unlike Aristotle, who offered a list of the conditions that the premises in a demonstration must satisfy—namely that they are true, primitive, immediate, better known than, prior to, and

93 On this point, see Fazlioğlu, “Between Reality and Mentality,” 1-39, esp. 2-3.
explanatory of the conclusion⁹⁴ – Ibn Sinā provided no such succinct list. Instead, Ibn Sinā’s discussion of the conditions are largely “implicit,” the one exception, however, being his explicit use of the “certainty condition,” which he took to include “both being true or real and necessary.”⁹⁵

Like Ibn Sinā, Jurjānī also does not offer any list of the conditions, but resorts to a single all-encompassing condition that the premise must be conclusive, which he takes to mean “certain.”⁹⁶ The condition of certitude signified all that the premises of a demonstration must possess, according to Jurjānī, which, in fact, subsumed many, though not all, Aristotelian conditions.⁹⁷ Indeed, “certainty” stood for a central and technical concept in the epistemological context of his time, and it is no wonder then that he sought to explain it quite thoroughly, by identifying its conditions and analyzing the kinds of demonstrative reasoning leading to it.

2.5.1 Definition of Certainty

In his well-known Book of Definitions (Kitāb al-Taʿrīfāt), Jurjānī highlights four aspects that taken together define certainty (al-yaqīn): (1) it is a conviction about a thing that it is likewise (iʿtiqād al-shayʾ bi-annahu kadhā), together with (2) a conviction that it is impossible for it to be otherwise (iʿtiqād annahu lā yumkinu illā kadhā). Moreover, (3)

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⁹⁷ Ibid., 132.
the conviction is in accordance with occurrence (muṭābiq li'l-wāqi'ī), and (4) cannot go away (ghayr mumkin al-zawāl). The first condition, he explains, serves as the genus which also includes probable opinion (ẓann), and the next three serve as the differentia, each, in their turn, excluding probable opinion, ignorance (jahl), and the belief of a muqallid (one who believes through taqlīd) who is correct, respectively. It seems however that the final condition in the definition appears not as a strictly independent criterion, but more as an implication of the second condition. A conviction that it is impossible for a thing to be otherwise implies that the possibility of being contrary is denied both for the present, thus excluding probable opinion (ẓann), and for the future, thus excluding the belief of a muqallid who is correct.

Throughout his different works, Jurjānī is quite consistent in understanding certainty in this manner. Other than dropping the final, implicative condition, he, in fact, offers exactly the same interpretation in Sharḥ al-Mawāqif to explain the nature of certitude possessed by the premises of a demonstration. Of the four conditions, two are quite central and worth reflecting upon. First to possess a conviction that a thing corresponds with occurrence is to say, for Jurjānī, that our belief is true. This is because as we shall see he understands truth as a relation of correspondence between a thing and actual fact. Accordingly, the concept of certainty then subsumes what we can call

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98 Jurjānī, Taʾrīfāt, 217 (entry on “yaqīn”).
99 Ibid.
100 See his definition of haqq (truth). Ibid., 79.
the truth condition. A significant corollary of this move is that while every certain judgment will necessarily be true, not every true judgment will necessarily be certain. Indeed it is possible that a judgment is true, namely, that it corresponds to the actual fact, but is only probable (ẓann muṭābiq li'l-wāqi').

The second key aspect of certainty, namely, that one possesses a conviction that a thing cannot be otherwise provides us with what we can call the necessity condition. Before looking at specific passages, a general comment will be useful here. As McGinnis has shown in the case of Ibn Sīnā, this necessity can importantly be construed in two ways. On one hand, it refers to a necessity “captured in the premises and conclusions of a demonstration” and obtained in the mind of a knower. It leads to one’s “assurance of some necessity” and, in this sense, seems to be “relative to the knower” as well as the “justification and warrant one has for a belief.” On the other hand, it refers to the necessity or “inevitableness of some causal relation” in the external world, which, though “captured in the premises and conclusions of a demonstration, nonetheless is independent of any knower and his syllogizing, and, in fact, provides the very basis for knowledge and syllogisms.” For Ibn Sīnā, the former type of certainty is dependent on the latter one, since the former will not be possible unless there was an “objective

102 Ibid.
103 Ibid., 131-2. I paraphrase from McGinnis until the end of this paragraph.
104 Ibid., 131-2.
105 Ibid., 132.
One holds on to his subjective certainty by positing and taking for granted some causal relation in the external world, whose nature though might be unclear, but whose inclusion furnishes the ultimate basis for that certitude.\(^{107}\)

As we shall see, one can locate these two aspects of necessity (psychological and causal) in Jurjānī’s understanding of the demonstrative reasoning leading to certainty; however, as noted above, one should be careful in interpreting his language of “causes,” since he does not seem to view causes in the Avicennian-Aristotelian sense, as implying natural, necessary causal structures, but instead as causes that preclude the kind of necessity imposed by the *falāsifa*.\(^{108}\)

### 2.5.2 Two Kinds of Demonstration

Jurjānī provides a fairly typical understanding of the demonstrative syllogism across his works. In his *Kitāb al-Taʿrīfāt*, he defines demonstration (*burhān*) as a syllogism built from certain premises (*yaqīniyyāt*), which are either certain to begin with, in which case they are known as the necessaries (*ḍarūriyyāt*), or acquire certainty through reflection, in which case they are known as theoretical speculations.

\(^{106}\) Ibid.

\(^{107}\) Ibid.

\(^{108}\) For two explicit instances of his Ash’arite stance on this topic that highlight the important concept of custom (*āda*) and the omnipotence of God, while rejecting the doctrine of necessity as understood by the *falāsifa*, see *Sharḥ al-Mawāqif*, vol. 1, 248-9 and vol. 2 (Dār al-Jīl edition), 279-80.
Central to a demonstration is that the middle term in the syllogism must be the cause (ʿilla) for the relation between the syllogism’s major and minor premises.\(^{109}\)

Jurjānī standardly divides demonstrative syllogism into two categories depending upon whether the middle term provides the cause for the relation between the terms in the mind (dhihn) only or in both the mind and the external world (khārij).\(^{110}\) As McGinnis points out, the distinction that is introduced is between “what came to be known in the Latin tradition as the demonstration propter quid, that is, the demonstration giving ‘the reason why’ (burhān limā), or simply the demonstration-why, and what was known as the demonstration quia, that is, the demonstration giving ‘the fact that’ (burhān anna), or simply the demonstration-that.”\(^{112}\) For each type of demonstration, Jurjānī provides a rather useful technical definition and an example that illustrates their mutual difference.

Demonstration-why, he defines, is a demonstration where the middle term provides the cause for establishing a relation between the terms of the syllogism, both in the mind and in the external world.\(^{113}\) That is to say two key things: that the relation between the terms is established also in the external world, and that the middle term is the cause for establishing the extra-mental existence of the relation. He gives the

\(^{109}\) Jurjānī, Taʾrifāt, 40 (entry on “burhān”)

\(^{110}\) Ibid.

\(^{111}\) Ibid.

\(^{112}\) McGinnis, Avicenna, 44.

\(^{113}\) Taʾrifāt, 40.
following syllogism as an example:114 This individual is suffering from putrefaction of the bile; whoever suffers from a putrefaction of bile is suffering from a recurring tertian fever; therefore, this individual is suffering from a recurring tertian fever. Just as suffering from the putrefaction of bile is the cause for establishing recurrent tertian fever in the mind (al-dhihn), it is also the cause, Jurjānī maintains, for establishing it in the external world.115

One must recognize that for Jurjānī, like Ibn Sīnā, a true causal relation is one which can be established for the external world, and not simply for the mind.116 Indeed, a proper cause is one which establishes precisely such a relation. It follows from his definition, then, that the middle term of a demonstration-why can properly be said to be the true cause since it is the cause of the judgment in the external world. As such, by identifying the true cause of an object, and deducing the object as the effect of the cause, a demonstration-why can conclusively establish the extra-mental existence of the object. Moreover, it is clear that the middle term establishes the necessity of the causal relation, both in the mind and in the external world. In this sense, the necessity, and corresponding certainty, obtained in the conclusion is not simply a matter of

114 Ibid.
115 Ibid.
psychological or subjective assurance, but rather should be understood in an objective sense as reflecting the causal structure of the world.\footnote{Ultimately, this necessity has to be accommodated within his broader Ashʿarite context which emphasizes the role of God’s custom or habit (ʿāda) as the means to understand the regularity given in natural processes of the world. See footnote 72 above.}

On the other hand, demonstration-that, Jurjānī states, is a demonstration where the middle term provides the cause for establishing a relation between the terms of a syllogism in the mind (dhihn) only.\footnote{Taʿrifāt, 40.} However, since the middle term does not establish the relation in the external world, one must not consider it to be a “proper” cause.\footnote{McGinnis, Avicenna, 45.} In his example of demonstration-that, Jurjānī goes back to his previous example used in explaining demonstration-why, but now he alters the example such that the middle term is the effect of the cause.\footnote{Taʿrifāt, 40. Line adapted from McGinnis, Avicenna, 45.} So, for example: an individual has a recurrent tertiary fever; every recurring tertian fever is suffering from the putrefaction of bile; therefore, this individual is suffering from bile’s putrefaction.\footnote{Taʿrifāt, 40.} In this example, suffering from recurrent tertian fever, though is the cause for establishing putrefaction of bile in the mind, it cannot, nonetheless, properly be called a cause since it does not establish putrefaction in the external world. In fact, the situation is actually opposite in the...
external world, claims Jurjānī, since tertiary fever, far from being the cause, is in fact the proper effect of the putrefaction of bile.\textsuperscript{122}

Given that the middle term in a demonstration—that is not a proper cause of the conclusion and also does not establish the relation between the terms in the external world, it may be tempting to allocate a lower level of epistemological confidence to the conclusions of such a demonstration. That, however, would be a mistake. On several occasions, Jurjānī quite clearly affirms that both kinds of demonstration yield conclusive and certain knowledge, and one must recall, too, that for him, certainty is not a matter of degree. For example, in his discussion of the probable and conclusive proofs, Jurjānī first clarifies that a conclusive proof is one which leads to certainty, and then proceeds to list \textit{innī} (demonstration-that) and \textit{limmī} (demonstration-why) as two kinds of a conclusive proof, contrasting them with signs (\textit{amāra}) which he says is a probable proof and provides only probability.\textsuperscript{123} Likewise, while discussing the issue of the impossibility of the void, Jurjānī makes a similar point in his reply, saying that some matters conventionally taken to show the impossibility of the void are in fact only signs (\textit{amāra}) which convey only probable opinion (\textit{ẓann}); they are not demonstrations which convey certainty.\textsuperscript{124} It is clear that despite the obvious causal weakness they possess in

\textsuperscript{122} Ibid.

\textsuperscript{123} \textit{Sharḥ al-Mawāqif}, vol. 2, 4.

\textsuperscript{124} Ibid. (Dār al-Jīl edition), vol. 1, 580.
comparison to demonstration-why, demonstration-that nonetheless are epistemologically equal in the sense of conveying the same certainty.

In fact, Jurjānī elsewhere explains what allows that the conclusions of a demonstration-that are also certain. Describing the method at work in a demonstration-that, he states:

“[Innī reasoning] is one where the middle term in not the cause for the judgment [in the external world], rather it is an expression for the establishment of a claim by falsifying its contrary, for instance, that person who establishes the eternity of intellect by falsifying its temporality with his statement that: the intellect is eternal because if it was temporal, it will be material; because whatever is temporal is preceded by matter.”\(^{125}\)

Unlike the middle term in a demonstration-why, which, being the cause, establishes a judgment by deducing it as its effect, the middle term in a demonstration-that amounts to a type of “warrant or justification,”\(^{126}\) which establishes its conclusion by denying its alternatives. In effect, in terms of allocating epistemological confidence, Jurjānī has placed a conclusion arrived at through a deduction from its cause on equal footing with one attained by falsifying its contraries. Moreover, it is clear that a demonstration-that establishes the necessity of the relation between the terms only in the mind. In this sense, the necessity seems to be a “subjective assurance,” or a psychological necessity, which is “relative to the knower and the justification one has for

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\(^{125}\) Taʿrīfāt, 119.

a belief,” where the justification, he would claim, is embedded in the middle term, pertaining to its ability to establish a conclusion by falsifying its alternatives. As such, this subjective sense of necessity contrasts with the causal necessity present in the demonstration-why.

It is likely that the thought that a demonstration-that establishes the necessity only in the mind might cause concern regarding whether the conclusions of a demonstration-that correspond with the external world. Can the external world be different than the conclusions reached by a demonstration-that? This, however, is a superficial concern for Jurjānī. For one thing, the subjective sense of the necessity (in the mind) given by the demonstration-that is dependent on the causal sense of the necessity (in the world) given by the demonstration-why since the former would not be possible, if there was no objective grounding. One holds on to his subjective certainty by implicitly recognizing some causal relation in the world whose nature may remain unclear. Indeed, at several places, Jurjānī identifies demonstration-that as an argument from the effect (maʿlūl) to the cause (ʿilla), and contrasts it with demonstration-why, as an argument from the cause to the effect. In effect, both demonstrations involve some causal relations. Unlike the demonstration-why, which

\[ \text{\textsuperscript{127}} \]
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\[ \text{\textsuperscript{129}} \]
\[ \text{\textsuperscript{130}} \]
explains and properly establishes the causal relation in the external world, the
demonstration-that simply posits (or assumes) some such relation without clarifying
it.131 Yet, the implicit recognition of a kind of a causal relation in the world in turn
ensures that the conclusions of a demonstration-that are not simply true for the mind,
but for the actual world also.

The upshot of Jurjānī’s views on demonstrative reasoning is a rather confident
stance on the ability of innī proofs to provide truths of the real world. The point will
prove particularly useful when we turn to understand his views on astronomy which,
according to him, being based on innī proofs is distinguished from natural philosophy
which utilizes limmī proofs. Initially, the respectability of innī proofs to describe the real
world and conduce to knowledge which is true and certain will, in turn, confer a
proportionate respectability to the science of astronomy. Furthermore, given that he
uses innī reasoning to formulate judgments in astronomy, knowing how he theoretically
understands such proofs, then, enables one to assess the epistemological and
ontological significance of some of his astronomical judgments.

CHAPTER 3:
JURJĀNĪ’S THEORY OF TRUTH: JUDGMENTS, MENTAL EXISTENCE, AND NAFS AL-AMR

3.1 Introduction

Different thoughts occur in our mind. Most are correct, but some may be erroneous. How can one distinguish between correct and incorrect thoughts? What are the criteria for determining the truth or otherwise of a judgment? This chapter examines this problem of truth in post-classical Islamic philosophical discourse through the lens of Sayyid al-Sharīf al-Jurjānī (d. 1413), whose views became particularly central in subsequent discussions and which dealt directly with the nature and application of truth.

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The problem of truth has a long and rich history in the Islamic intellectual tradition. Most of the discourse on truth appeared in the disciplines of kalām (theology), falsafa (philosophy), and taṣawwuf (Sufism), of which the first two are of specific relevance here due to their role in the interpretation of mathematical knowledge and objects. A key term that theologians and philosophers commonly used for “truth” was the polysemic Arabic word ḥaqq, which can be translated as both reality and truth.
In his well-known *Kitāb al-Taʿrīfāt* (Book of Definitions), a lexicographical work containing the definitions of technical terms belonging to the standard fields of Islamic learning, Jurjānī provided a common view of the conceptual linkage between truth and reality by highlighting both aspects in his definition of the term ḥaqq. On one hand, it refers to “a thing whose existence is established” and “a thing established for which there is no justification for its denial.”¹ This denotes the first and primary aspect of ḥaqq which pertains to the “real” in the sense that real designates reality or the “ontological orders of existence.”²

On the other hand, it signifies “a judgment conforming to reality (*muṭābaqat al-hukm liʾl-wāqiʿ*). It is applied in a general sense to statements, articles of belief, religions, and different legal schools (*al-madhāhib*) with reference to their inclusions of reality. Its opposite is falsehood (*al-bāṭil*).³ This provides the second aspect of ḥaqq pertaining to the “truth” in the sense that true refers to the “logical orders of existence”⁴—a judgment conforming to reality (*al-wāqiʿ*, meaning some portion of reality such as facts, events, objects, etc.). As such, the word ḥaqq stood for both reality and truth.⁵ Its

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³ Jurjānī, *Taʾrīfāt*, 79.


opposite, he defined, was *bāṭil*, meaning unreal or falsehood. That there is a single word which was taken generally to mean both reality and truth is of significance for it conveyed a tradition’s self-conscious understanding of the meaning of truth not merely as a “property of statements, beliefs, and judgments,” but also as a “property of the nature of reality.”

In the same entry where he defined *ḥaqq*, Jurjānī introduced another technical Arabic word, *ṣidq*, also meaning truth, which was conventionally used interchangeably with *ḥaqq*. Like *ḥaqq*, *ṣidq* consists in a relation to reality. Elsewhere, he defined *ṣidq*, quite standardly, in a manner identical to *ḥaqq*, as “a judgment conforming to reality.”

Although both terms share the same definition, he did bring to attention two points of conceptual distinction between them.

Firstly, while *ḥaqq*, as mentioned, designates truth pertaining to statements, but also to beliefs, religions, legal schools, as well as things and events in existence, *ṣidq*,

( *al-thābit hakīkat*), and therefore ‘reality,’ and the meaning ‘what corresponds to facts,’ and therefore ‘truth,’ is secondary).

6 Naquib al-Attas, *Prolegomena to the Metaphysics of Islām*, 125-6. See, also, Marian David, “The Correspondence Theory of Truth,” *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta (2016) https://plato.stanford.edu/archives/fall2016/entries/truth-correspondence/ (“Medieval theologians regarded both, judgment-truth as well as thing/person-truth, as somehow flowing from, or grounded in, the deepest truth which … is God. Their attempts to integrate this … [theological understanding] with more ordinary thinking involving truth gave rise to deep metaphysico-theological reflections. The notion of thing/person-truth, which thus played a very important role in medieval thinking, is disregarded by modern and contemporary analytic philosophers but survives to some extent in existentialist and continental philosophy.” One can add to this account that in the Islamic tradition, one of the “Beautiful Names” ( *al-asmāʾ al-ḥusna*) of God, in fact, is *Al-Ḥaqq*, which occurs often in the Qurʾān in the sense as opposite to *bāṭil*. But the use of *ḥaqq* in the Qurʾān, in Islamic traditions, and in Arabic literature in general, is not restricted to the Divine Name; it may refer to any “reality,” “fact,” or “truth;” thus, the features of the Day of Judgment, Paradise and Hell are *ḥaqq*. See MacDonald and E. E. Calverley, “Hakk,” in *Encyclopaedia of Islam, Second Edition*.

7 Jurjānī, *Taʿrifāt*, 113 (entry on *ṣidq*).
however, denotes truth pertaining only to statements, and whose opposite is *kidhb* meaning untruth or falsehood.\(^8\) Simply put, the term *ṣidq* designates the truth of a statement while *ḥaqq* designates the truth of statements as well as things (or the like). This provides a reason why in accordance with ordinary usage, *ṣidq* translates as truth, while *ḥaqq* as reality.

Secondly, both *ḥaqq* and *ṣidq* apply jointly to a statement or belief insofar as it conforms to reality. However, the distinction between them comes from the manner in which one can view the relation of conformity. One can view the judgment from the standpoint of reality; this designates *ḥaqq* and the statement is said to be real (*ḥaqq*). Alternatively, one may view the judgment from the perspective of statement (or belief); this defines *ṣidq* and one may refer to the statement as true (*ṣidq*).\(^9\)

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\(^8\) See ibid., 79.

\(^9\) Ibid., 79. Jurjānī writes, “The distinction that may be made between these two pairs of contrast is that in the case of reality (*ḥaqq*) the correspondence is seen from the standpoint of reality (*wāqi‘*), and in the case of truth (*ṣidq*), from the standpoint of judgment (*ḥukm*). Hence, the meaning of the truth (*ṣidq*) of a judgment is that the judgment corresponds to reality, whereas the meaning of the reality (*ḥaqq*) of a judgment is that the reality corresponds to the judgment.” He repeats the same idea in his gloss on *Maṭāli‘ al-Anwār*. See Jurjānī, Ḥāshiya ‘alā Lawāmi‘ al-Asrār fī Sharḥ Maṭāli‘ al-Anwār, 12-13, appended at the end in Urmawī, *Maṭāli‘ al-anwār fī al-ḥikmah wa-al-mantiq* ([Istanbul]: Matbā‘at al-Ḥājj Muḥarram al-Busnawī, 1303 [1885]), 382-3. He writes, “*Ḥaqq* and *ṣidq* share the same object because each can be qualified by both the statements, namely, (i) “statement (*qawl*) conforms to reality (*al-wāqi‘*)” and (ii) “belief (*ʾaqd*) conforms to reality.” The distinction between them is borne from the fact that conformity between two things requires relating one thing to the other according to the conformity. Let us grant that a belief conforms to reality. Now if one relates reality towards that belief, then reality will be the relatum [term which is related to the referent] and belief will be the referent, and this conformity established by means of belief is known as *ḥaqq*, and it is said that this belief is real (*ḥaqq*). Conversely, if one relates belief towards reality, then the belief will be the relatum and reality the referent, and the conformity established by means of belief here is known as *ṣidq*, and it is said that this belief is true (*ṣādiq*).”
3.1.1 The Problem of Truth

The problem of truth was raised in the classical Islamic milieu within the framework of discussions that took for granted the relatively uncontroversial formula of truth as “judgment conforming to fact (al-ḥukm muṭābaq al-wāqi’).” But the question which persisted in the discussions through each generation of scholars was ultimately about its proper interpretation. More specifically, the question was how to correctly conceive and resolve —what one can identify, and which to varying degrees were recognized by the authors themselves — the three main conceptual issues embedded in the very definition of truth. These were (i) the nature of the relation of conformity (muṭābaqa), (ii) the portion of reality to which a judgment conforms (wāqi’, fact), and (iii) the notion of judgment itself (ḥukm).

Central to all three issues was a metaphysical (in an Aristotelian sense) inquiry. The first issue concerned the nature of “conformity.” Although the relation of conformity (muṭābaqa) was generally understood to involve a certain “correspondence” and “coherence” between the intellectual act of judgment and the portion of reality being perceived, the details of the requirements that the relation must satisfy were often murky, and discussed.

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10 Naquib al-Attas, Prolegomena to the Metaphysics of Islām, 129.
The issue concerning fact (al-wāqiʿ)\textsuperscript{11} was more pressing. As a contemporary philosopher has noted of the medieval theories of truth, the formulation of truth as “conformity between judgment and fact” is, at its core, “an ontological thesis: a belief is true if there exists an appropriate entity - a fact - to which it corresponds. If there is no such entity, the belief is false. Facts, ... are entities in their own right.”\textsuperscript{12} Any attempt to formulate a theory of truth would then have to tackle the question of what these facts are taken to be composed of. While hardly any reputable scholar during the period, irrespective of his philosophical or theological orientation, would deny that facts include concretely existing bodies, they did debate the question whether they also included mental entities, and, if so, how to understand their ontological status.\textsuperscript{13} This debate covered questions ranging from the validity of mental existence to that of the status of mental objects and the various kinds of mental entities. Can mental existence be established? Do mental entities have existence, and if so, what distinguishes them from

\textsuperscript{11} Al-wāqiʿ can variously be interpreted as event, occurrence, happening, reality or fact. I have preferred the latter for, I think, it better captures the crucial metaphysical angle embedded in the manner Islamic thinkers normally interpreted this word. I discuss this metaphysical aspect in some detail below.

\textsuperscript{12} The point is made in the case of the neo-classical correspondence theory of truth, which possesses a similar idea of “truth as correspondence to fact.” Despite the similarity, this theory of course cannot be retroactively applied to the Islamic post-classical milieu which operated upon a different metaphysical view of the world. See Michael Glanzberg, “Truth.”

concrete, extra-mental entities? If they are not existents, either mental or extra-mental, then what is the ontological mode by which they are, given that one can surely make true judgments about them, such as, for example, “two is even”? Moreover, how can one distinguish between different mental entities such as universals, like “blackness,” fictional entities, like unicorns, and impossibilities, such as square circles?¹⁴ Is there a further distinction between various universal concepts like “blackness” or “blindness” or “evenness,” given that each seems to attach to a different kind of thing?

Similarly challenging, and related to these concerns, was the issue about the notion of judgment. Used in a number of technical meanings in the fields of Islamic law and Arabic grammar, among others, judgment in philosophical and theological discourse stood for the intellectual act of the mind by which it either affirms or denies one thing for another.¹⁵ When studied in relation to the proposition, it leads first to the question of determining the types of propositions that can be true or false, and second to the nature of the truth-bearing propositions. As a version of truth that assumed the propositions to have a subject-predicate structure began to be standardized,¹⁶ authors debated the nature of the concept in the position of the predicate. The discussions covered questions ranging from the kinds of predicates to their mode of existence and


¹⁵ See A. M. Goichon, art. “Ḥukm,” EI² (citing Jurjānī’s definition in Taʿrīfāt, “The act of establishing a relation between one thing and another by affirmation or denial.”)

¹⁶ Ibid. In addition to the ḥamlī, attributive judgment, they also recognized conditionals and disjunctives. But it remains unclear how their accounts of truth can be extended to cover the conditionals. For the most part, the extension was ignored, for object-based correspondence in truth was the norm until relatively recently. See Marian David, “The Correspondence Theory of Truth.”
the types of objects they qualify. Do predicates have existence either in the external
world or mind? Do they occur through some other ontological mode? What is the
ontological status of the objects which the predicates qualify?

In addressing these three main issues, Islamic thinkers made truth part of a
thoroughgoing metaphysical system.\textsuperscript{17} As truth relied on significant metaphysical
presuppositions, articulating the nature of truth became a function of applying authors’
background metaphysics.\textsuperscript{18} Owing to a blend of varying substantial and terminological
differences in the metaphysical underpinnings of truth, it gave rise to a multiplicity of
viewpoints about truth.

3.1.2 Historical Background

3.1.2.1 Ibn Sīnā and True Knowledge

Aspects concerning the problem of truth were discussed rather early in Islamic
thought, in the theological context of debates between the Ashʿarites and Muʿtazilites.\textsuperscript{19}
Sophistication also came early through the absorption of Greek logic by the falāṣifa,
especially with Fārābī (fl. 4\textsuperscript{th}/10\textsuperscript{th} c.). However, it was the maturing of falsafa into an

\textsuperscript{17} Michael Glanzberg, “Truth,” (who explains how, in answering the truth question, each
medieval theory would inevitably make “the notion of truth part of a more thoroughgoing metaphysics
and epistemology”).

\textsuperscript{18} Ibid.

\textsuperscript{19} For a basic and general overview of the history of “truth” in Islamic philosophy, see Andrey
Bontekoe (Blackwell Publishers, 1\textsuperscript{st}ed., 1997), 437-447.
overarching metaphysical framework in the works of Ibn Sīnā (fl. 5th/11th c.) that marks the beginning of an important view about true knowledge. Indeed, it was Ibn Sīnā who, perhaps more than anyone else before him, ventured to explain not only philosophically the process of how true knowledge (or intellectual perception) is possible, but also to identify an ontological foundation for all and every true knowledge.

Concerning the way one acquires true knowledge, Ibn Sīnā believed that such knowledge begins by the combined workings of both our external senses and what he identified as the internal sense faculties. Ibn Sīnā sees the internal senses as a cluster of five different faculties located in the various ventricles of the brain. The common sense and (one aspect of) the imaginative faculty is located in the front ventricle of the brain. The common sense “coordinates the impressions received by the individual

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21 Ivry, “Arabic and Islamic Psychology and Philosophy of Mind.”
senses in order to produce a unified picture of the sensible object.” The “sensible forms that the common sense receives and unifies are then transmitted to the imaginative faculty,” which Ibn Sīnā divides into two kinds, “calling the first appearance a retentive imagination” (al-khayāl, also known as formative faculty, al-quwwa al-muṣawwira). It “retains these forms fully,” and is thus called the “retentive” or “formative” imagination. The “middle ventricle is the location of the next pair of internal senses,” comprising a “novel faculty of estimation (wahm)” and a second “chameleon, type faculty.” The latter “functions both imaginatively (in animals and humans), and rationally (in humans alone),” and forms the other aspect of imagination, simply called al-mutakhayyila (or the composite imagination). However, when this faculty deals with “specific, materially based concepts,” Ibn Sīnā calls it al-quwwa al-mufakkira, a thinking or “cogitative” faculty. The estimation functions in both humans and animals in order to “sense a non-sensible intention (maʿnan) that is intrinsic to the object” as perceived by someone, such as powerful “negative feelings a sheep senses in perceiving wolves, or the positive feelings sensed in perceiving a friend.”

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22 Ibid.
23 Ibid.
24 Ibid.
25 Ibid.
26 Ibid.
27 Ibid.
28 Ibid.
believed that “the intentions that the estimative faculty obtains are received in the third and rear ventricle of the brain, in memory, al-ḥāfiza. Memory shares the third ventricle with a faculty of recollection (dhikr), which retains the estimative intentions ready for recall.”

Ibn Sīnā took the goal of both kinds of senses to eventually provide the intellect with the essence of a thing that it is abstracted from any material concomitants. Accordingly, in the beginning, one may sensibly experience the essences of things as they exist in the material things around us. Through the various stages of the abstractive process of the intellect, more and more of the material contents are stripped away from the essences until finally it reaches its most abstract state at which point they are stored in retentive imagination. Alternatively, they can also be manipulated in the composite imagination, which works under the intellect to combine, separate, or manipulate them. Indeed, of all the internal faculties, it is imagination which plays a central role in intellection. This is because by its function of combining and separating images with given meanings, it acquires access to the universal intelligible notions and allows for the rational faculty to think of them. However, crucially, Ibn

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29 Ibid.
30 Jon McGinnis, Avicenna, 118.
31 Ibid., 99.
32 Ibid., 110, 133.
33 Ibid., 133.
34 Ibid., 114-6.
Sīnā believed that the grasping of the universals ultimately does not come from the function of the mind. Rather it is the action of the Active Intellect – an immaterial intellect, which is the last of the ten cosmic intellects that stand below God.\(^{35}\)

Ibn Sīnā is perhaps the first to clearly articulate the need and role of the Active Intellect in bringing intellection (or true intellectual perception, i.e., the process of abstraction that leads to universals). According to him, the Active Intellect stood as the cause which brought things from a “state of potentiality to a state of actuality” by providing them with “intellectualizing forms.”\(^{36}\) The Active Intellect itself possessed all the intellectualizing forms immaterially.\(^{37}\) In the act of perceiving, once the potentially intelligible objects in the mind “have been sufficiently abstracted” and “prepared” by the alterations of various internal sense faculties, the Active Intellect “emanates the intellectualizing forms” that make them actually intelligible objects, resulting in “intellectual perception.”\(^{38}\)

For Ibn Sīnā, the Active Intellect featured as the defining ontological principle of his metaphysical system that he utilized to explain truth.\(^{39}\) Indeed, a true intellectual

\(^{35}\) Ibid., 135-7.

\(^{36}\) Ibid., 136.

\(^{37}\) Ibid., 138.

\(^{38}\) Ibid., 136.

perception, for him, comprised a judgment conforming to the forms present in the
Active Intellect. In the case by which there are no forms in the Active Intellect to which a
judgment can correspond, the judgment is false. Moreover, the Active Intellect is also
the cause of sound “logical inferences.” The act of hitting upon the middle term, either
by syllogistic or intuitive reasoning, proceeds due to the emanation of the intelligible
from the Active Intellect. In short, the Active Intellect is, then, the “source of
intelligible forms on earth,” and the source of our being able to conceive of them. It
“functions much as does the sun,” illuminating both the subject and object of
intellection, and is “present at every stage of the individual person's intellectual
development.”

3.1.2.2 Post-Avicennian Developments

The basic framework of the internal sense faculties that Ibn Sīnā outlined – in
terms of internal senses which perceive internally the sensual images and their
meanings, combine or separate them, conceive notions of them, preserve the

39–72. See also essays by McGinnis, Hasse and D. Black in Interpreting Avicenna: Critical Essays, ed. Peter
resembles an external hard disk, in the sense of an intellectual depository which delivers upon demand,” p. 119.

Sajjad H. Rizvi, “Avicenna (Ibn Sīnā) (c. 980 – 1037),” Internet Encyclopedia of Philosophy,
http://www.iep.utm.edu/avicenna/.

Ibid.

H. Davidson, Alfarabi, Avicenna, & Averroes, on Intellect, 86, 87, 92.
conceptions thus conceived and perform intellection of them – appears repeatedly in the philosophy of Ibn Sīnā’s successors. However, one key element of his philosophy that became controversial was the existence of the Active Intellect, as a “single” and “separate” intellect that isolates and activates the potential forms in the mind. It was this doctrine of the Active Intellect that was not adopted by the majority of the Sunnī mutakallimūn who followed him. For example, Fakhr al-Dīn al-Rāzī (d. 1210), undertaking a critical evaluation of Ibn Sīnā’s philosophy in the twelfth century, proceeded to reject the whole notion of the Active Intellect, including the “doctrine of emanation and its cosmogonic intermediaries” – a rejection which was energetically resisted by Avicennian purists like Ṭūsī (d. 1274).

There is no simple narrative as to why and how the Avicennian picture of the Active Intellect as the guarantor of true knowledge (and science) begins to change. There is intense intellectual, religious, and cultural ferment happening in the Islamic

43 McGinnis, Avicenna, ch. 4.

44 This is the case, for example, in someone like Ghazālī. See Ghazālī, Maʿārij al-Quds fi maʿrifat al-nafs. Although the authenticity of attributing this work to Ghazālī has been questioned, Frank Griffel notes that the text, however, is useful, as it explains the background of a number of Ghazālī’s teachings that appear in his generally accepted works; he further writes that “the work is doubtless of Ghazalian character”; see Griffel, Al-Ghazali’s Philosophical Theology, 289, footnote 35. See also Naquib al-Attas who attributes it to Ghazālī; see Muhammad Naquib al-Attas, Prolegomena to the Metaphysics of Islam, 149-50.

45 McGinnis, Avicenna, 130.

46 For Rāzī’s rejection of the notion of the Active Intellect, see Ayman Shihadeh, The Teleological Ethics of Fakhr al-Dīn al-Rāzī (Leiden: Brill, 2006), especially chapter one and three. On Rāzī’s criticisms of the theory of abstraction and of mental forms in general, see Bilal Ibrahim, “Freeing Philosophy from Metaphysics: Fakhr al-Dīn al-Rāzī’s Philosophical Approach to the Study of Natural Phenomena,” Ph. D. dissertation, McGill University, 243-326 (chs. 5 and 6). On Ṭūsī’s views in defense of mental existence and the Active Intellect, see below.
world beginning already from the eleventh-century. Change occurs most importantly due to the theological imperatives of the Sunnī mutakallīmūn, observed most clearly in Ghāzālī (d. 1111) and later Rāzī. However, it also accompanies developments that see the rise of several critical traditions that raise broader objections to aspects of Ibn Sīnā’s philosophy. Of them, the most notable were the ishrāqī tradition of philosophy initiated by Suhrawardī (d. 1191), the Sufī gnostic philosophy of Ibn ‘Arabī (d. 1240) and his followers, and also a mathematically-based scientific tradition which was aimed directly at the Aristotelian ontology undergirding Ptolemaic astronomy. This


50 In addition, even among some of the philosophers (falāsīfā), Ibn Sīnā’s philosophy was not received uncritically. A particular case in point is Abū al-Barakāt al-Baghdādī’s (d. 1164) Kitāb al-Mu‘tabar which criticized aspects of his metaphysics just like Ghazālī had earlier done so, and which prefigured some of al-Rāzī’s criticisms. See Kitāb al-Mu‘tabar, 3 vol. in 1 book (Hyderabad: 1357 AH). A monograph on his metaphysics is Jamāl Rajab Sīdaī, Abū al-Barakāt al-Baghdādī wa Falsafatuhu al-Ilāhiyyah: Dirāsah li Mawajīfihi al-Naqdī min Falsafat Ibn Sīnā (Cairo: Maktabah Wahbah, 1996).
latter development in fact began while Ibn Sīnā was alive, observed in a lively debate he had with al-Bīrūnī (d. 1048) who took to suggesting that his own discipline of mathematical astronomy (or geometry) was not bound by the prevalent principles of Aristotelian natural philosophy, further systematized by falāsifa like Ibn Sīnā. This began a critical trend towards the freeing of mathematical astronomy from metaphysics during the twelfth and thirteenth-centuries which was to find its eventual culmination in ʿAlī Qushjī (d. 1474), who would declare that astronomy can be insulated from the criteria dictated by natural philosophy (or metaphysics) and that its principles are fully internal to itself.52

Though the process was multi-layered and gradual, there occurs a general weakening of the central role the Active Intellect once played in true knowledge. This did not mean that Muslim thinkers gave up the claim to know reality and truth. For how could they since the existence of universal, true statements, such as those of, say, geometry or arithmetic, were recognized uncontroversially. In fact, the very observation that we possess mental, non-existing concepts that are true proved to be a rather significant starting point, for some, to re-examine the criterion of true knowledge.53 With the notion of the Active Intellect in disrepute, both mutakallimūn and falāsifa


53 See the case of Ṭūsī, discussed below.
began to search for alternative concepts.\textsuperscript{54} Since many of them were also practicing scientists (or astronomers), it was also important in the broader interest of their disciplines to look for rather ontologically deflationary concepts that could serve, at the functional level, at least, as settled standards of truth.

It is in the context of these developments, especially in the thirteenth-century, that we note that \textit{nafs al-amr} (lit., the thing in itself), as a properly technical term, begins to acquire prominence as a philosophical concept embodying a determinate criterion for truth.\textsuperscript{55} The pursuit for alternative concepts in relating true, mental concepts to reality is not only observed in the rise of \textit{nafs al-amr}, but also in the increasing attention focused towards the directly related notions of mental and extra-mental existence (\textit{wujūd dhihnī} and \textit{wujūd khārijī}), external world (\textit{al-khārij}), and the like. Indeed, after Rāzī rejected mental existence,\textsuperscript{56} two generation of scholars in the


\textsuperscript{55} In my examination of the main philosophical-theological works representative of the period, I have been able to trace this usage of \textit{nafs al-amr}, as a determinate criterion of truth of judgments, most noticeably in the works of Ṭūsī, and, subsequently, those drawing on his ideas, including Ḥillī, Ījī and Jurjānī. Although the exact phrase “\textit{nafs al-amr}” appears to be used less commonly before these thinkers, another related but distinct term \textit{fi nafsihi} (something taken in and of itself) can be traced all the way back at least to Ibn Sinā. See Robert Wisnovsky, “Notes on Avicenna’s Concept of Thingness (\textit{shay’iyya}),” \textit{Arabic Sciences and Philosophy}, 10 (2000): 181-221. Whether there is a substantial link between the two distinct concepts, and, if so, what is the pre-history of the concept of \textit{nafs al-amr}, remains to be explored.

thirteenth- and fourteenth-centuries, both Sunnī and Shi‘ī, turn to accepting and elucidating mental existence. Some among the first generation were Abharī (d. 1264), Kātibī al-Qazwīnī (d. 1276), Bayḍāwī (d. 1286), and Ťūsī, while those among the second generation (which extends into the fourteenth-century) included Ḥillī (d. 1325), Iṣfahānī (d. 1348), Ibn Mubārakshāḥ al-Bukhārī (d. 1359), and Ījī (d. 1355). The development of nafs al-amr is even more interesting.

Nafs al-amr, understood as “the thing itself” in line with its lexical usage, can, as a term, be traced back to Ibn Sīnā. But while the term may have been present in Ibn Sīnā’s works, it hardly displayed any substantial role in his theory of true knowledge. The defining ontological criterion of truth for him, as we saw, was conformity with the Active Intellect. Here lies precisely the transformation during the thirteenth-century. For the term begins to acquire a certain prominence as an objective criterion of truth, especially the truth of mental judgments. This does not mean that the notion of the Active Intellect was necessarily being displaced by nafs al-amr in every instance. The extended referent of nafs al-amr became a contested issue, and some, like Ťūsī, could

interpret *nafs al-amr* to refer to precisely the Active Intellect. But what it does mean is that there was a beginning of a serious attempt to elucidate the concept of *nafs al-amr* and assign it a substantial philosophical role by designating truth as conformity with it.

### 3.1.2.3 Ṭūsī

In order to trace aspects of this development more concretely, it is worth beginning from Ṭūsī’s contribution. He sets out to write an independent treatise establishing *nafs al-amr* and defines truth as consisting of a relation to it. Yet his example is particularly relevant for being a committed *faylāsūf*, he, more than anyone else, took to reinstating Ibn ʿīnā’s philosophy and defending it against the objections of Rāzī. Importantly, for our discussion, he returns to accepting the existence of the Active Intellect, and views *nafs al-amr* to be the same as the Active Intellect. Since Jurjānī will directly respond to Ṭūsī, it is helpful to consider Ṭūsī’s view of *nafs al-amr* in some detail.

Concerning the need for *nafs al-amr*, Ṭūsī first distinguishes between two kinds of judgments present in the mind. The first kind, he says, refers to those which are true and certain, for example, “One is half of two” or, “The diagonal of a quadrilateral is not equal to its side.” The second kind, he continues, refers to those which are false, for example, “The diagonal of a square is equal to its side.” More specifically, outlining the

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58 See the following section on Ṭūsī. Cf. İhsan Fazlioglu, “Between Reality and Mentality.”
60 Ibid., 3.
difference between the two, he states that the judgments of the first kind conform to what is present in nafs al-amr, whereas judgments of the second kind have no such conformity. Then, concerning the role of nafs al-amr in establishing true factual judgments of the first kind, he writes:

“We know for sure that conformity can only be conceived between two things that are distinct in their particularities, but identical in that due to which conformity occurs. We do not doubt that the two mentioned kinds of judgments share in mental establishment. Therefore, it is necessary that for the first of the two kinds, as opposed to the second, there should be an establishment external to our minds, such that one can consider conformity between what is present in our mind and what is present there. The latter is what is known as nafs al-amr.”

The general thrust of his argument is that truth consists in a relation of conformity between two distinct things. In the case when a mental judgment is true, what is present in the mind must conform to what is present outside the mind. Ṭūsī identifies this realm as nafs al-amr.

Having established the need for nafs al-amr and its role in realizing true factual judgments, Ṭūsī turns to consider the referent of nafs al-amr itself. Though the complete argument is long and fine-grained and not directly relevant to our discussion, we can understand the basic structure. He first tells us that what is established externally to the mind must either be self-subsistent or an image present in something else. Additionally, the self-subsistent either has a position or not. Considering each of

61 Ibid., 4.
the four logical possibilities, he argues that what is established external to the mind
must be an image present in something which does not have position. He proceeds to
establish that whatever possesses this image, possesses it not as potential, but as
actual. Further still, he argues that images never disappear from this thing, nor do they
lead to any alteration, regeneration, or transformation in the thing. Concerning the kind
of thing which he sees he has thus established, which in turn he takes \textit{nafs al-amr} to
refer to, he writes:

“Therefore, one has established the existence of an existent \textit{(mawjūd)} that self-subsists externally [to the mind], does not have
a position, possesses all the intelligibles as actual which can flow
from it in such a manner that it is inconceivable for the existent and
the intelligibles to undergo any alteration, transformation, regeneration and cessation. The existent and the intelligibles will
be with these attributes eternally and eternally.” \footnote{Ibid., 7.}

To be sure, Ṭūsī tells us that this existent is not God because the existent entails
multiplicity, while God does not, nor is it equal to the forms because the forms are more
accurately possessed by it and proceed from it. \footnote{Ibid. See also Robert Morrison, “Natural Theology and the Qurʾān,” \textit{Journal of Qurʾanic Studies} 15.1 (2013): 1-22, 12-3.} Ṭūsī concludes that the existent is the
“universal intellect” \textit{(al-ʾaql al-kull)}, also called the Active Intellect. \footnote{Ibid.}

The point that becomes clear from this short treatise is that Ṭūsī not only returns
to affirming the Active Intellect, but also sees \textit{nafs al-amr} as corresponding to it. In fact,
this point can be further substantiated from his theological work, \textit{Tajrīd al-ʾtiqād}

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\footnote{Ibid., 7.}

\footnote{Ibid. See also Robert Morrison, “Natural Theology and the Qurʾān,” \textit{Journal of Qurʾanic Studies} 15.1 (2013): 1-22, 12-3.}

\footnote{Ibid.}
(Summation of Belief). At a particular point, he is explaining that the criterion for the truth of a mental judgment should not be conflated with that of a judgment about the external world. The latter judgments are true when they conform to the external world, whereas the truth of a mental judgment is on account of its conformity with *nafs al-amr*. While Ṭūsī himself does not proceed here to explain what he means by *nafs al-amr*, in a commentary of his work, *Kashf al-Murād*, Ḥillī (d. 726/1325), who was a student of Ṭūsī, narrates to us Ṭūsī’s response when he was asked how he understood *nafs al-amr*.

“I asked him [i.e., Ṭūsī] about the meaning of their statement: The truth of mental judgments is by considering its conformity with what is present in *nafs al-amr*. The intelligible in *nafs al-amr* is either established mentally or externally. But he has rejected both of them here. He replied: What is intended by *nafs al-amr* is the Active Intellect. Every form or judgment established in the mind which conforms to the forms impressed in the Active Intellect, is true; otherwise, it is false.”

The passage provides one of the clearest evidences of how Ṭūsī, while recognizing the role of *nafs al-amr* in the realization of true factual judgments, eventually and straightforwardly understands it as precisely the Active Intellect. One can use this observation to summarize Ṭūsī’s contribution to the issue of true intellectual perception into two main points. First, he brings to attention the functional value of the concept of *nafs al-amr* by assigning it a role in the realization of true mental judgments. Second, he supplies *nafs al-amr* with a particular ontological status by identifying it with

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the Active Intellect. Accordingly, on one hand, the development of the concept of *nafs al-amr* in Ṭūsī falls short of providing a full-fledged analysis insofar as he utilizes it as an intermediary concept through which one can argue from the fact of true mental judgments to the existence of the Active Intellect. Yet, on the other hand, by designating truth with conformity to *nafs al-amr*, he does accord a particular importance and relevance to the term itself, and so provides an impetus and an occasion for later scholars to engage more fully in explicating its meaning and role.

### 3.1.2.4 Nafs al-Amr in Post-Ṭūsī Period Until Jurjānī

Following Ṭūsī, *nafs al-amr* continues to attract attention as a technical term, with its connotation of “the thing itself.” But it is its ontological status in terms of the further extension of this thing and its correspondence to some ontological entity that especially becomes a source of conflicting viewpoints. Ṭūsī’s identification of *nafs al-amr* with the Active Intellect represented only a particular position, mainly for those *falāsifa* who generally took to defending Ibn Sīnā’s metaphysical system. But since this system was being undermined or revised on different fronts, motivated by both theological and philosophical concerns, different authors defined the ontological status of *nafs al-amr* differently.

One source for the differences in the ontological extension of *nafs al-amr* comes in the context of the critical engagements between the *mutakallimūn* and the *falāsifa* in the post-classical period. This may be seen from the observation Jurjānī notes about the word *wāqiʿ* in his *Taʿrīfāt* (Book of Definitions), which, in addition to defining words, also
indicated the differences in how they were interpreted by various groups. While scholars uniformly understood truth as conforming to fact (or wāqi’), he writes that unlike the falāsifa who interpreted wāqi’ as the Active Intellect, the mutakallimūn identified it with the Qur’ānic reference to the Preserved Tablet (al-Lawḥ al-Maḥfūẓ). The entry tells us something about the difference between the two groups in what they took to be the referent of true knowledge. But one may be advised to exercise caution in reading too much into the dispute in part due to the fusion one sees in the discourse of this period between the Qur’ān and the philosophical reading of revelation. As a case in point, Ṭūsī, who thoroughly equates nafs al-amr with the Active Intellect, could also claim that the Active Intellect in turn actually refers to the Qur’ānic concepts of the Preserved Tablet and the Manifest Book (al-Kitāb al-Mubīn).

Another setting where the ontological issue assumes significance was the exposition of God’s knowledge in the Sufi metaphysical tradition of Ibn ʿArabī (d. 1240), which can most clearly be seen in the works of Ibn ʿArabī’s influential commentator, Dawūd al-Qayṣarī (d. 1350). With Ṭūsī in sight, Qayṣarī first raises a number of objections against his view that basically holds God’s knowledge to be identical with the Active Intellect. Then, instead of the Active Intellect, he identifies nafs al-amr as “an expression for God’s essential knowledge, which contains the forms of all things

66 Jurjānī, Taʿrīfāt, 208 (entry on wāqi’).
67 Ṭūsī, Risāla Ithbāt al-ʿaql al-mujarrad, 8.
whether universal or particular, large or small, in general or in detail, cognitive or concrete.”

But there is a final point to his discussion. He writes that while the Active Intellect cannot mean God’s knowledge, it can and has been correctly taken by some of the Sufis as an expression of *nafs al-amr*. This is because, he continues, the being of the Active Intellect is the manifestation of divine knowledge inasmuch as it contains the universals which itself comprises its particulars; and, furthermore, because its knowledge conforms to what is in God’s knowledge. Additionally, based upon a similar reasoning, the universal soul known as the Preserved Tablet, he concludes, can also be taken as an expression of *nafs al-amr*. Philosophically rich, the remarks can be explained at several levels, but we may limit ourselves to two directly relevant observations. First, the remarks point to the diversity in how *nafs al-amr* was being interpreted during that period: Active Intellect, universal soul, God’s knowledge, Preserved Tablet, etc.

Second, Sufi metaphysics became an important channel of ideas about *nafs al-amr* by linking it with God’s knowledge, which, as we shall see, proved to be significant for Jurjānī’s own understanding of the ontological issue.

Among the variety of ontological meanings of *nafs al-amr*, it was still Ṭūsī’s interpretation of it as the Active Intellect that continued to loom in the background of later scholars responding to Ṭūsī but with emerging self-conscious awareness on their

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69 Ibid., 17.

70 Cf. İhsan Fazlıoğlu, “Between Reality and Mentality.”

part of the limitations of such a view. However, despite the import of the strong theological case against the Active Intellect made by Ghazālī and Rāzī, this awareness was not simply and only a case of the feud between the Sunnī *mutakallimūn* and the *falāsifa*, nor was the reasoning involved always reliant on some theological doctrine. Some who were thoroughly committed to the theological-philosophical system of Ṭūsī, itself an extension of Ibn Sīnā’s philosophy, were led to acknowledging the weakness of this view by what they saw as a purely philosophical objection. This can be clearly observed in the response of one of Ṭūsī’s most influential students and the fourteenth-century Shiʿī theologian, Ḥillī, to Ṭūsī’s remarks regarding the meaning of *nafs al-amr* as the Active Intellect. Concerning the difficulty he sees in the view of equating *nafs al-amr* with the Active Intellect, Ḥillī writes:

“One can raise an objection that the statement compels the philosophers towards the impression of forms that are false in the Active Intellect. This is because they argued for its existence on account of the difference between [the state of] forgetfulness (*nisyān*) and inattention (*sahw*). For inattention is the disappearance of the intelligible form from the intellecting substance (*al-jawhar al-ʿāqil*) while having its impression in the memory. And forgetfulness is its disappearance from both of them together. This arises in the sensible forms. As for the intelligible forms, the cause of forgetfulness is the disappearance of the capacity due to the disappearance of what is beneficial for knowledge in terms of conceptions and assents. These two states [i.e., forgetfulness and inattention] can occur in judgments that are false. Hence, one does not achieve contentment (*maqnaʿ*) in this [statement].”

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The general thrust of the argument relies on the standard philosophical understanding of true intellectual perception, namely, that the Active Intellect, already possessing the intellectualizing forms, provides them to the potentially intelligible object in the intellect, and thereby makes it actually intelligible.\textsuperscript{73} The actual intelligible then impresses itself on the intellecting substance (\textit{al-jawhar al-\textsuperscript{`}āqil}) in the human intellect resulting in intellectual perception.\textsuperscript{74} Once the intellect has been impressed with the forms in this manner, it is then however possible that forms may disappear from the intellectual substance but stay in memory, which is when one is inattentive of the judgment, or they may disappear from both, which is when one simply forgets the judgment. But it is possible that one can forget or be inattentive about a false judgment, too. For example (and with some simplification), one may believe in the (false) notion that the number two is odd, and then one day fail to remember this oddness of two (or, “inattentively” think that the number two is even). This implies that the forms of this false judgment are actually present in the human intellect, which in turn received those forms from the Active Intellect. One is thus forced to conclude that the Active Intellect possesses the intelligible forms of false judgments. Neither Hilli, nor any of the \textit{falāsifa} could accept such a conclusion, even while they remained strongly committed to the existence of the Active Intellect in their metaphysical accounts. As such, while Ė\textsuperscript{m}ṣī’\textsuperscript{h} system was to be carried onwards into the fourteenth-century and beyond, largely by

\textsuperscript{73} McGinnis, \textit{Avicenna}, 136

\textsuperscript{74} Ibid.
the Shīʿites, his successors (both Sunnī and Shīʿī) would also continue to note the weaknesses in relation to his proof for the Active Intellect as well as its doubling role as nafs al-amr.\textsuperscript{75}

In the Sunnī kalām literature, the notion of the Active Intellect generally fades in the thirteenth- and the fourteenth-centuries with Rāzī’s critical attitude to Ibn Sīnā’s metaphysics largely defining the future trajectory of the tradition. Concurrently, as commentaries on the main philosophical and theological texts of the period emerge, concepts are being further refined and distinctions surface based on even finer points of philosophical logic. In this context, the term nafs al-amr begins to appear with greater frequency in a number of works during this period, though, to be sure, there remain significant exceptions.\textsuperscript{76} Some, especially those responding to Ṭūsī, also proceed to provide a more substantive understanding of the concept itself.\textsuperscript{77} They not only delineate the role of nafs al-amr in their respective accounts of truth and, more specifically, in the realization of true factual judgments, but also attempt to elucidate it

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\textsuperscript{75} For the reception of Ṭūsī’s argument for the demonstration of non-material substance (i.e., Active Intellect, for him), see the various commentaries and glosses written on his Ithbāt al-ʿaql which largely highlight various objections and weaknesses in the arguments and premises. Risāla ithbāt al-ʿaql al-mujarrad, ed. Tayebah Arefnia (Tehran: Miras-e Maktoob, 2014), including commentaries and glosses by Shams al-Dīn Kīshī (called Rawdat al-Munāẓira), Jalāl al-Dīn Dawānī (830-908?AH), Shams al-Dīn Gīlānī (1098 AH), Ḥusayn Ilāhī Ardabīlī (870-950 AH), Mawlā Muḥammad Ḥanafī Hirawī (fl. 925 AH), Shaykh ʿAlī Mālidī (fl 10\textsuperscript{th} c. AH) and Abū al-Faḍl b. Muḥammad Muṣṭafī la Ṭawālīʿ al-anwār (commentary known as Al-Lawḥ al-Mahfūẓ ʿan al-hazl al-Manbūḥ).

\textsuperscript{76} A sample of works (related to Jurjānī) where the term appears includes: Ījī’s Mawāqif, ʿĪsahānī’s commentary on Tajrīd, Qutb al-Dīn al-Rāzī’s commentary on Maṭāliʿ al-anwār, and the commentaries and glosses on these works by Jurjānī. However, Baydawī does not use the term in his Ṭawālīʿ al-anwār.

\textsuperscript{77} The most significant example is Jurjānī, which I discuss below.
further by clarifying *nafs al-amr* in terms of its juxtaposition and relationship with other concepts such as the external world and mental existence.

This is precisely where the achievement of Jurjānī lies. He takes to conducting a thorough analysis of *nafs al-amr* along with its related concepts, like mental and extra-mental existence, and external world, and, by doing so, defines the trajectory of future discussions on the topic. Moreover, it is precisely this conceptual framework of terms, concepts, and analyses that he utilizes to offer a solution to the problem of truth, answering both questions of how truthful knowledge is possible and what serves as the ultimate ontological criterion of truth. While Jurjānī’s discussion draws on earlier scholars, Jurjānī’s novel understanding of many of the key concepts used to explain truth, such as his conception of *nafs al-amr*, makes his view uniquely his own.

By putting this understanding to use in resolving various key philosophical and mathematical issues, he can in fact be credited with establishing the concept of *nafs al-amr* as a central term in the intellectual discourse of the later centuries. Indeed, as has been pointed out by a contemporary scholar, ʿAlī Qūshjī (d. 879/1474), Khoja-zāda, Dashtaki, Dawwānī, Ibn Kamāl, Ṭāshkūbrīzāda, and almost every other major thinker living in the fifteenth- and sixteenth-centuries authored works on *nafs al-amr* following the pattern of Jurjānī.78

A few key ideas play a central role in Jurjānī’s thinking about truth, ideas which also directly relate to his views about scientific (or mathematical) knowledge. For the

purposes of the following overview, I confine my attention to three topics, treating each in a separate section:

- Jurjānī’s Theory of the Truth of Judgments
- Position on Mental Existence (wujūd dhihnī)
- Understanding of Nafs al-amr

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3.2 Jurjānī’s Theory of the Truth of Judgments

3.2.1 Introduction

Jurjānī’s theory of truth is found in his Ḥāshiya ‘alā Sharḥ al-Tajrīd, wherein he approaches the question of the meaning of truth from the standpoint of a judgment.79

What does it mean for a judgment to be true? Drawing on Ṭūsī, and his commentator, Iṣfahānī, he states that the truth and correctness of a judgment is either on account of its conformity to the external world (al-khārij) or to nafs al-amr (lit., the thing itself). In order to explain his statement, he proceeds to provide an enlightening analysis that can be seen as an accomplishment of philosophical reflection. He first clarifies the nature and the various kinds of judgments that can be admitted as truth-bearing items. He then goes on to explain the conditions for each kind of judgment which must be fulfilled in

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79 Jurjānī, Ḥāshiya ‘alā Sharḥ al-Tajrīd, MS 865 [988H], Robert Garrett Collection, Princeton University Library, 66b-67b. The relevant passages on which the present chapter is based have been translated and placed in the appendix. See Appendix 1.
order for the judgment to be true, shedding light not only on the nature of the relationship of “conformity” but also the kind of appropriate entities (or facts) to which a judgment conforms in order to be true. The task leads him towards a further and particularly significant inquiry, this time, regarding what functions as the ontological grounds of these entities to which a judgment conforms. Here, he provides a brief primer on the two kinds of existence, external and mental, and, more importantly, on the ontological notion of nafs al-amr. Most importantly, not only does he provide his own interpretation of nafs al-amr, but, in the final section, he also alerts his readers to the deficiencies associated in previous accounts of nafs al-amr that tend to equate it with the Active Intellect.

In order to orient and limit our focus towards the particular manner Jurjānī understands the criteria of the truth of a judgment in this work, it is useful to begin by presenting at the outset what forms the first part of his full statement:

“The correctness and truth of a judgment can be because of its conformity to the external world (al-khārij), or can be because of its conformity to nafs al-amr, as opposed to the external world. The details of this topic are that the proposition whose veracity needs to be ascertained is of four types:

First: A judgment about the external world (khārijiyya) by means of external entities (umūr khārijiyya), i.e., by means of things existing (mawjūd) externally about things of its like.

Second: A judgment about intelligible entities (‘aqliyya) by means of intelligible entities.

Third: A judgment about things existing externally by means of intelligible entities.
Fourth: A judgment about intelligible entities by means of things existing externally.

This last type disallows the correctness and truth of a positive judgment because of the impossibility of the situation that a thing existing externally can be established for what is an intelligible entity having no existence in the external world.

Concerning the first type, the correctness and truth of a judgment being on account of the judgment’s conformity to the external world means that one of the two existents in the external world is related to the other in the external world in a manner upheld by the judgment. It does not entail from this that the relation of one of the two existents to the other exists in the external world because of what you know that the external world occurring as a place (ẓarf) for the relation itself (nafs al-intisāb) does not necessitate it occurring as a place for the existence of the relation (wujūdīhī).

Concerning the second type, the truth of a positive judgment is on account of its conformity to nafs al-amr. One must not think here of a conformity to the external world since neither of the two sides of the judgment [i.e., the thing which the judgment is about and the thing by which one judges] exists in the external world. Hence it is not possible at all to relate one to the other in the external world.

Concerning the third type, the truth of a positive judgment can either be on account of its conformity to nafs al-amr, as witnessed in our statement: “a human is possible”. This is because a human is qualified with possibility irrespective whether he exists in the external world or not. Or it can be on account of its conformity to the external world, as seen in your statement, “Zayd is blind,” because Zayd is not qualified with the condition known as blindness except in the external world only. The latter situation refers to what is said that the things existing externally can be qualified in the external world with non-existing things (umūr ‘adamiyya), and that the absence (intifā) of the principle of predicate in the external world does not necessitate the absence of predication in the external world, and that positively affirming a thing for another thing with respect to the external world is dependent upon the existence of the latter in the external world. This is because a thing
non-existing in the external world cannot actually be related in the external world by something, nor can it actually be dependent upon the existence of this thing.”

3.2.2 Kinds of Judgment

Jurjānī begins his discussion by inquiring into the notion of judgment. In accordance with his general strategy to consider an issue in its general form and then identify all possible distinctions, he considers the nature of judgment and introduces a four-fold typology of judgment in his important opening statement.

1. A judgment about an externally existing entity by means of an externally existing entity.
2. A judgment about a mental entity by means of a mental entity.
3. A judgment about an externally existing entity by means of a mental object.
4. A judgment about a mental entity by means of an externally existing entity.

The typology reveals two important assumptions about the nature of judgment. Jurjānī considers judgment to be of the kind which either affirms or denies that a certain thing either is or is not another thing. In doing so, all four types share a common understanding of judgment as one referring to a simple predication, which is made by means of entities, either having extra-mental existence or being only mental. Such a judgment is of the kind called ḥamlī, attributive judgment, which possesses a subject-

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80 Jurjānī, Ḥāshiya ʿalā Sharḥ Tajrīd, 66b-67a.
predicate structure, such as, for example, “the body is red.”\textsuperscript{81} The distinction is with respect to another kind of judgment that refers to a fact dependent on a certain condition and involves a certain consequence, and is known as \textit{sharṭī}, conditional proposition, such as, for example, “if the sun rises, it is daylight.”\textsuperscript{82} It remains unclear how Jurjānī’s account of the truth of judgments can be extended to include conditionals and disjunctions.\textsuperscript{83}

Given that the typology assumes that the truth-bearing items (or judgments) have a subject-predicate structure, one can further sharpen the description of each kind of judgment. Subject and predicate can each either refer to an externally existing entity or a mental entity, leading to four logical possibilities of a subject-predicate combination, and, hence, of judgment. They are (i) both subject and predicate refer to externally existing entities,\textsuperscript{84} for example, “Zayd is a man,” (ii) both subject and


\begin{footnotesize}82\end{footnotesize} Ibid.

\begin{footnotesize}83\end{footnotesize} It seems that he simply ignored them, which however is not altogether surprising for that was the norm until relatively recently. See David, Marian, “The Correspondence Theory of Truth.”

\begin{footnotesize}84\end{footnotesize} The distinction that Jurjānī draws between different kinds of judgment here is based on an understanding that the property (or quality) indicated by the predicate of a judgment can be an externally existing entity.

This introduces a key issue in metaphysics called the problem of universals. Universals refer to the different types of properties, such as qualities (e.g., whiteness, being human) and relations (e.g., taller than). The problem of universals is whether these properties (or universals) exist in reality or merely in thought.

As Nicholar Heer has pointed out: Specifically, Muslim thinkers recognized three kinds of universals. The natural universal (\textit{al-kullī al-ṭabīʿī}) was usually defined as the nature (\textit{al-ṭabīʿah}) as it is in itself, absolute and unconditioned by anything. It was distinguished from two other universals, the mental universal (\textit{al-kullī al-ʿaqlī}) which is the universal insofar as it is a universal, that is, the nature conditioned by universality, and the logical universal (\textit{al-kullī al-manṭiqī}), which is the concept of universality itself. See
predicate refers to mental entities, for example, “Genus is a universal,” (iii) subject refers to an externally existing entity, whereas predicate refers to a mental entity, for example, “Human is a possibility,” or, “Zayd is blind,” and (iv) subject refers to a mental entity, whereas predicate refers to an externally existing entity, which, Jurjānī says, is an actual impossibility.

Additionally, the subject-predicate structure of the judgment implies that truth has a particular characteristic. Truth consists in a relation of conformity between the concepts in the position of the subject and predicate, on one hand, and the entities in

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As such, the problem of universals was specifically about the status of natural universals, of whether it exists externally or merely in the mind. In general, the position of Ibn Sinā, Ṭūsī, Kātibī and Urmawī was that natural universals had external existence, whereas the position of *mutakallimūn* such as Qutb al-Dīn Rāzī and Taftazānī was that they only existed in the mind. For the position of the former group, see Ibn Sinā, *al-Shifāʿ, al-Illāhiyyāt*, pp. 202-212; Ṭūsī, *Sharḥ al-Ishārāt*, pp. 192-193; Kātibī, *al-Risāla al-Shamsiyya*, p. 6; and Urmawī, *Maṭāliʿ al-Anwār*, p. 53. For the position of the latter group, see Qutb al-Dīn Rāzī, *Lawāmiʿ al-Asrār*, pp. 53-56; and Taftazānī, *Sharḥ al-Risāla al-Shamsiyya*, pp. 46-47. Quoted from Nicholas Heer, *The Precious Pearl* (New York: SUNY, 1979): 76-77. On Rāzī’s theory of structured universals, a theory which favors a phenomenal (as opposed to an objective, extra-mental) approach to universals, see the recent dissertation by Bilal Ibrahim, “Freeing Philosophy from Metaphysics.”

Although understanding the full details of Jurjānī’s position require a deeper study, one can make a few preliminary observations. There are some general discussions where Jurjānī reproduces the conventional, philosophical position, that is, of universals possessing external existence. See *Kitāb al-Taʿrifāt*, p. 156 (definition of kullī al-ṭabīʿī); p. 186 (definition of al-maʿqūlāt al-ūlā, i.e., primary intelligibles); *Ḥāshiya ʿalā Sharḥ al-Maṭālīʿ*, p. 158-9; and *Ḥāshiya ʿalā Sharḥ Tajrīd*, p. 133 of the Arabic edition by Hūriyya Shujāʿī. However, at instances where the particular question is directly raised, his careful and considered position is that they only properly exist in the mind, not the external world. See *Ḥāshiya ʿalā Sharḥ al-Maṭālīʿ*, pp. 134-138.

In our relevant context of his theory of the truth of judgments, Jurjānī relies on the general, conventional understanding that the property indicated by the predicate of the judgment can be an externally existing entity. As such, it enables him to demarcate between two kinds of properties, one possessing external existence (such as, “man” or “horse”), and another which is only mental (such as, “possibility” or “blindness”). This in turn allows him to differentiate between various kinds of judgments (four in total) depending on whether the predicate term of a judgment indicates a property possessing external existence or not.
the reality that they signify, on the other.\textsuperscript{85} One can denote the latter as an object the judgment is about, or simply object (or “thing”), and its property (or “quality”). This clarifies the definition of truth, for it implies that a true judgment must satisfy two relations. First, there must be a reference between the subject term of the judgment and the object the judgment is about (i.e., “thing”). Second, there must be a correspondence between the predicate term of judgment and the property of the object. To put it briefly, truth, in this setting, comprises a relation between subject-predicate and object-property.

3.2.3 Truth-Conditions of Judgments

How does this definition of truth play out individually in the four types of judgment? Alternatively, what are the specific truth conditions for each judgment? Jurjānī addresses this question by separately discussing the conditions for each type. He begins by considering first the fourth kind of judgment, that is, a judgment about mental entities by means of externally existing entities, but terms it as an actual impossibility. The impossibility of judgment is borne of the “impossibility of the situation that an externally existing entity can be established for a mental entity having no existence in the external world.”\textsuperscript{86} A predicate-quality possessing external existence cannot qualify a

\textsuperscript{85} On this point, see Toshihiko Izutsu, The Fundamental Structure of Sabzawari’s Metaphysics (Tokyo: Keio University, 1971), 41.

\textsuperscript{86} Jurjānī, Ḥāshiya ‘alā Sharḥ al-Tajrīd, 67a, henceforth, abbreviated as “HST.”
subject-thing which is only in the mind. Since such a judgment is impossible, the question of its truth, he says, does not even arise.

He then returns to consider the first kind of judgment where both the subject-thing and predicate-quality are externally existent entities. Drawing on the remarks made by Ṭūsī, and Iṣfahānī, that the truth of this judgment is on account of the judgment conforming to the external world (al-khārij), he proceeds to explain what actually is meant by the phrase “conforming to the external world.”

“The correctness and truth of a judgment being on account of the judgment’s conformity to the external world means that one of the two existents in the external world is related to the other in the external world in a manner upheld by the judgment. It does not entail from this that the relation of one of the two existents to the other exists in the external world because of what you know that the external world occurring as a receptacle (zarf, container) for the relation itself (nafs al-intisāb) does not necessitate it occurring as a receptacle for the existence of the relation (wujūdihi).

This passage clarifies a number of points. First, given that a “fact” to which judgment conforms is built from an individual object and its property, and both of which in this kind are considered to be externally existing entities, the passage indicates that there are certain properties which are in fact existents in the external world. Second, the passage illuminates certain aspects of the relation of conformity. A judgment conforms to fact, and, hence, is true, if the structure of the object-property (fact) matches the subject-predicate form of the statement expressing that judgment. Third,

87 Ṭūsī, Tajrīd, 70; Iṣfahānī, Sharḥ Tajrīd, 44b.
88 Jurjānī, HST, 67a.
and finally, it clarifies the nature of the relationship between the object and its property. Conventionally, the object-thing is described as being qualified (ittiṣāf) by the predicate-property. That is to say, in this case, a concretely existing thing is qualified by a concretely existing property; however the relation of “qualification” itself, Jurjānī says, is not a concretely existing entity. The distinction drawn by Jurjānī is between the nafs (ipseity) of a relation and the wujūd (existence) of a relation. That the former can be realized in the external world does not necessitate the latter; hence, Jurjānī posits, the latter (existence of the relation) is not realized in the external world. One can clearly detect a nominalist tendency in his thought here, both in the form of the ontological lessening of the relation of “qualification” and, particularly, the reasoning leading to it.

Turning to the second kind of judgment, that is, a judgment where both the subject-thing and predicate-property are mental entities, Jurjānī, following Ṭūsī (and Iṣfahānī), states that the truth of such a judgment is on account of its conformity to nafs al-amr (the thing in itself). The basic idea behind nafs al-amr here, given by Ṭūsī himself, is to provide a solution to the problem of mental entities. Since our mind can conceive of falsities (kawādhib), the truth of mental entities cannot be judged on account of what is simply in the mind, but must be on account of reference to some other realm – nafs al-amr. While Ṭūsī does not further mention here what he means by the concept, elsewhere, however, Ṭūsī, following Ibn Sīnā, equates nafs al-amr with the

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89 Ṭūsī, Tajrīd, 70; Iṣfahānī, Sharḥ Tajrīd, 44b.
Active Intellect. The truth of entities, for him, is ultimately on account of conformity with the intelligible forms possessed by the Active Intellect.

In his commentary, Iṣfahānī provides no remarks on the meaning of the concept. Jurjānī, however, in his commentary does importantly clarify what he precisely means by the term later in the same discussion. But in the immediate context, he simply warns the reader again that concerning this kind of judgment, one must not think of conformity to the external world because “neither of the two sides of the judgment exists in the external world.” And so, he says, “it is not possible at all to relate one to the other in the external world.”

In addressing the truth of the third, and final, kind of judgment, that is, a judgment where the subject-thing is an externally existing entity while the predicate-property is a mental entity, Jurjānī uniquely distinguishes between two sub-types of judgment. The distinction he provides is between a statement, such as, to use his example, “human is possible,” and one, such as “Zayd is blind.” The truth of the former, he says, is on account of its conformity to nafs al-amr, because “a human is qualified with ‘possibility’ irrespective whether he exists in the external world or not.” In contrast, the truth of the latter, he continues, is on account of its conformity to the external world, because “Zayd is not qualified with the condition known as blindness except in

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90 Jurjānī, HST, 67a.

91 Predicates, being a logical concept, are always mental. When Jurjānī loosely speaks of existing or non-existing predicates, what is intended is that the property (or quality) indicated by the predicate term is either existing or non-existing. In order to avoid ambiguity, I have thus used the phrase “predicate-quality” and “subject-thing.”
the external world only.” One can understand the distinction drawn by Jurjānī to be between two situations: one, where a mental predicate-quality qualifies a subject-thing in *nafs al-amr* (irrespective of whether the subject-thing exists in the external world or not), and, another, where it qualifies it in the external world.

The idea encapsulated in the latter situation – a mental, non-existing predicate-quality qualifying a concretely existing object in the external world – indeed forms a cornerstone doctrine in Jurjānī’s understanding of truth. Jurjānī highlights its significance himself by underscoring the different articulations given to the same basic idea, and which are, in fact, utilized in several of his other works. Immediately following his remarks on the example of Zayd being qualified with “blindness” in the external world, he writes:

“This statement refers to what is said that [1] the externally existing things can be qualified in the external world with non-existing entities (*umūr ʿadmiyya*); and that [2] the negation (*intifāʾ*, or absence) of the principle of predicate in the external world does not necessitate the negation/absence of predication in the external world; and that [3] positively affirming a thing for another thing with respect to the external world is dependent upon the existence of the latter in the external world. This is because a non-existing entity in the external world cannot actually be related by something in the external world, nor can it actually be dependent upon the existence of that thing.”

In the above passage, Jurjānī presents three distinct articulations of the same idea that a mental predicate-quality can qualify an object in the external world. Though

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he does not elaborate here how this qualification takes place nor what exactly he means by a mental predicate, he does, however, provide an elucidation in his other works. Comparing his works not only deepens our understanding on this issue, but also reveals a general consistency in how he is thinking about it more broadly. More importantly, as we shall see in the next chapter, this idea (i.e., a mental, non-existing predicate-quality qualifying an external object) plays a pivotal, leading role in his defense of astronomical and mathematical knowledge. For Jurjānī, a non-existing, mental concept should not be treated as empty fiction or false imagining, but can actually tell us something valuable about the real world.

Below I present the relevant portions from his two works, namely, Ḥāshiya ʿala Lawāmiʿ al-Asrār fī Sharḥ Maṭāliʿ al-Anwār (Gloss on the “Shining of Secrets,” itself a commentary on the “Ascent of Lights”) and Sharḥ al-Mawāqif fī ʿilm al-kalām (Commentary on the “Stations in the Science of Kalām”), followed by some general remarks.

3.2.4 Mental Predicate-Quality: How It Qualifies Its Objects?

3.2.4.1 Ḥāshiya ʿalā Lawāmiʿ al-Asrār fī Sharḥ Maṭāliʿ al-Anwār

How can mental predicates-qualities qualify objects in the external world or in nafs al-amr? Jurjānī’s roughly page-long exposition in his Ḥāshiya directly addresses this

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question in a wider context of explicating the proper meaning of the establishment of an existent in the external world and in *nafs al-amr*.94

After clarifying a seemingly dense portion in Quṭb al-Dīn al-Taḥtānī’s (d. 1364) commentary on the issue of entailment, Jurjānī prefaces his remarks with a rather confident, “The purpose of this chapter is,” before beginning his discussion. Advancing his main idea, he states that the non-existence of a predicate-quality in *nafs al-amr* does not entail that the non-existing predicate-quality cannot be predicated of (ṣadaqa ‘ala) a thing in *nafs al-amr*. And, so, since there is no entailment, it is indeed possible that a non-existing predicate in *nafs al-amr* can be predicated of a thing in *nafs al-amr*. The argument, he says, extends in a parallel fashion to the external world (*al-khārij*). A non-existing predicate-quality in the external world can be predicated of a thing in the external world.

He goes on to provide two examples where a non-existing predicate-quality is actually predicated of a thing. The first is of a non-existing predicate-quality95 which is predicated of a thing in the external world. Consider the statement, “Zayd is blind,” and let us grant it is true in the external world. The truth of the statement, Jurjānī says, however does not entail that the concept of blindness exists in the external world. In fact, the concept of blindness, he tells, does not exist in the external world at all. This is

94 The full translation of the relevant passage is present in Appendix A. The following provides a presentation of his ideas contained in the passage in order to shed light on how Jurjānī understands a mental predicate can qualify an object. The emphasis here is to draw a unifying theme in both accounts as opposed to conducting a more fine-grained philosophical analysis.

95 I.e., A quality which does not exist in the external world or in *nafs al-amr*.
because both the external world and nafs al-amr do not occur as a receptacle (zarf) for
the existence of “blindness,” or the concept of blind, or the concept of qualification.
Given that blindness is not an existent in the external reality, it is then incorrect to
interpret the statement to mean that blindness is realized (mutaḥaqiq) or established
(thābit) for Zayd.

But importantly, despite being a non-existing predicate-quality in the external
reality, “blindness,” he tells, can be predicated of a thing in the external world. Indeed,
Zayd, he continues, is qualified (ittiṣāf) with blindness in the external world. This is
because the external world and nafs al-amr occur actually as a receptacle for the
qualification of the person himself. Finally, while the statement does not entail that
blindness be an existent in the external world, it is indeed necessary, Jurjānī says, that
Zayd must exist in the external world. Otherwise, one cannot qualify him with anything
in the external world.

In a parallel manner, Jurjānī then provides his second example, this time, of a
non-existing predicate-quality which is predicated of a thing in nafs al-Amr. Consider the
case when one establishes “four” in one’s mind. It comes to be qualified with evenness.
Evenness of four, he tells us, is true in nafs al-amr. However the truth of the judgment
does not entail that “evenness” exists in nafs al-amr. More precisely, it does not entail
that either “evenness” or the concept for even or qualification exists as among the
existents according to nafs al-amr, irrespective of whether in the external world or in
the mind. In fact, “evenness,” he tells, does not exist in nafs al-amr at all. The reason is
the same, namely, that nafs al-amr does not occur as a receptacle for the existence of
“evenness” or the concept of qualification. However, importantly, despite being a non-existing predicate in *nafs al-amr*, “evenness,” he tells, does qualify “four” in *nafs al-amr*. Finally, Jurjānī says, while the judgment does not entail that “evenness” be an existent in *nafs al-amr*, however, “four” must exist in *nafs al-amr*, even if only in the mind. Otherwise, one cannot qualify it with anything in *nafs al-amr*.

In the preceding two examples, if the expression “non-existing predicate-quality” seems a bit vague, if only because one may want an example of an existing predicate-quality, or, more fundamentally, to understand the notion of existence on which the distinction turns, Jurjānī does provide such an explanation in the remaining discussion.

Jurjānī first states that an existent in the external reality or *nafs al-amr* is an existent ultimately on account of its establishment (*taḥaqquq*) and existence in itself (*fī nafsihī*). It is not an existent only on account that it can be predicated of or can qualify something. Based on this articulation, one can see then why both blindness and evenness, according to Jurjānī, are non-existing predicates-qualities, since they do not possess independent existence in and of themselves, but only qualify their subject in the external world and in *nafs al-amr*, respectively.

Importantly, he then turns to distinguish between a predicate-quality that is existing and one that is non-existing (or mental) in a crucial remark:

“The upshot [of the discussion] (*ḥāṣil*) is that the principle of predicates (*mabādī al-maḥmūlāt*) with respect to *nafs al-amr* can either be matters that exist with respect to their own selves (*umūran mawjūdatun bī ḥasbihā*), for example, whiteness. This is because it is a matter established (*mutahaqqiq*) in the external world. Hence the intellect perceives (*yudrikuhu*) it, mentally
conceives \(ya'tabiru\) the concept of whiteness, and predicates \(ya'ḥmilu\) it for a body.

Or [the principle of predicates] can be matters that do not exist with respect to their own selves, for example, necessity and evenness and difference and likewise other mental constructions \(umūr i'tibāriyya\). Their subjects are characterized with them in \(nafs al amr\). When the intellect intends to judge the subjects with them, it conceptualizes them [i.e., subjects] and considers them. Thus they become at that time mental existents \(mawjūdāt dhihniyya\). Then the intellect uses them [i.e., mental constructions] to provide judgments about these subjects that conform to them in \(nafs al-amr\). [This is] despite the fact that we know without a doubt that subjects are characterized with them even before the intellect mentally constructs them and considers them alone.

The passage makes a distinction between two kinds of predicates: one, where the quality indicated by the predicate has an existence in the external world, such as “whiteness,” and another, where the quality indicated by the predicate is a mentally posited entity \(amr i'tibārī\), having no existence in the external world, such as “necessity” or “evenness.”

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96 Another way to shed light on this distinction is to address the nature of concept in the position of the predicate. Viewed from this angle, the distinction between the concept of “whiteness” and that of “universality” was understood in the philosophical tradition as a distinction between two fundamental classes of concepts technically known as primary intelligibles \("'ma'qūlāt al-ūlā") and secondary intelligibles \("'ma'qūlāt al-thāniya\). This was a distinction concerning the foundation and variety of intelligible forms. As M. F. Nematsara outlines, according to the standard philosophical account, knowledge by representation was divided into three levels: sensory, imaginary, and rational (or intelligible). In the process of acquiring knowledge, first sensory forms of objects are formed. Sense perception continues as long as the relationship between sensory organs and external objects holds. When the objects are absent from the sensory organs, the memory of the forms remains in a faculty called the retentive imagination. Then the theoretical faculty, through certain operations, produces universal and rational concepts, which are referred to as the intelligible forms (or, simply, intelligibles). Depending on whether the mind apprehended an intelligible from the external world or from another intelligible in the mind, Muslim thinkers drew a distinction between two classes of concepts technically known as primary and secondary intelligibles. See M. F. Nematsara, “Secondary Intelligibles: An Analytical and Comparative Study on First and Second Intentions in Islamic and Western Philosophy,” M.A. Thesis, McGill University, 1994. The
central philosophical discussion is Ibn Sinā, *al-Shifā*, *al-Mantiq*, and *Taʾlīqāt*; see also Tūsī, *Asās al-Iqtibās*, p. 399.

In general, Jurjānī does not refer to the distinction between primary and secondary intelligibles in his discussion of the theory of the truth of judgments. But, one can mention two of his remarks, offering a basic definition of the two intelligibles, which can illuminate the distinction between the specific concepts such as “whiteness” and “universality.” Needless to say, a deeper study would be required to understand his complete position on the topic of intelligibles.

How does Jurjānī formulate the difference between primary and secondary intelligibles? In his *Kitāb al-Taʿrīfāt* (p. 186), Jurjānī defines them as follows:

> “Primary intelligibles: which, on account of their corresponding, exist in the external world, for example, the nature of ‘man’ and ‘horse.’ [This is] because both are predicated of external existence, like in our statement, ‘Zayd is a man,’ and ‘horse is an animal.’

Secondary intelligibles: which are not, on account of their facing/corresponding, a thing in the external world, for example, ‘species,’ ‘genus’ and ‘difference.’ [This is] because they cannot be predicated of thing existing in the external reality.”

In his *Hāshiya Sharḥ Tajrīd* (p. 133 of Arabic ed. by Ḥūriyya Shujāʿī), he offers a more extended statement of the difference between the two classes:

> “Primary intelligibles are the natures of notions which are conceived as they are. [Intelligibles] which occur for the primary intelligibles in the mind, and there is nothing which conform to them in the external reality, are termed secondary intelligibles, such as ‘universality’ and ‘particularity’ and their likes, since their occurrence is at the second level of apprehension. This is because it is only possible to apprehend ‘universality’, for example, after apprehending a thing for which ‘universality’ occurs in the mind. There is nothing in the external world which conforms to ‘universality,’ like there is for ‘blackness’ an intelligible in the external world which conforms to it...

In general, two conditions are upheld in secondary intelligibles:

First: that the intelligible is not in the first level, rather it is necessary that one apprehends it as occurring for another intelligible in the mind.

Second: there is nothing in the external world which conforms to it.

Everything which is apprehended at the first level is a primary intelligible, irrespective whether it [externally] exists or does not exist, is compound or simple. Similarly, a thing which is only apprehended as occurring for other than itself, such that there is something which conforms to it externally, for example, ‘relation’ (*iḍāfat*), when it is said to be established in the external reality.”

For Jurjānī, primary intelligible refers to a concept which corresponds to an externally existing entity, and/or which can be directly apprehended by the mind. Stock examples include concepts such as “blackness,” “man” and “animal” (satisfying both clauses), and relations such as “paternity” (satisfying the first clause). Secondary intelligible, however, refers to a concept which has no corresponding entity in the external world, and which is apprehended as occurring for another intelligible in the mind, such as “universality” and “particularity.”
The basic idea that Jurjānī intends to highlight here is the difference in the manner the two types of predicate-quality qualify their subject-thing. In the case of whiteness, because it is an externally existing property, one can sense (or apprehend) it directly and immediately by perception, and subsequently obtain the concept of whiteness and predicate it for a body. On the other hand, “necessity” or “evenness,” being a mentally-posited entity, cannot directly be apprehended. Instead, when the intellect intends to judge some object with such a quality, it has to first conceive and consider the object itself. In doing so, the object, at that instant, becomes a mental existent (mawjūd dhihnī). The intellect then judges upon the object with its qualities (such as “necessity” or “evenness”), providing judgments which conform to the object in nafs al-amr. However, despite that one first has to establish the objects and then make judgments about them using their properties, it should be clear, Jurjānī adds, that the objects are qualified by their properties even before the mind mentally posits them.

3.2.4.2 Sharḥ al-Mawāqif

Turning to Sharḥ al-Mawāqif, there is a particular significance one may attach to Jurjānī’s remarks here for this was an avowedly constructive and, retrospectively,
enduring work of Ash’arite doctrine. In explaining the standard stock of metaphysical
and physical categories (like existence and its modes, quiddity, and also time, place,
motion, etc.), a significant concern for its author, Ījī, and Jurjānī, is to clarify their
ontological status. Depending on whether such concepts exist externally or not, Jurjānī,
who is following Ījī, distinguishes between two kinds of concepts. The first kind exists in
the external world, indicating objective natures and concrete realities, which he calls
wujūdī (existing), such as “man.” The second kind has no external existence and is only
mental or conceptual in character. He calls it iʿtibārī (mentally-posited).97 As a technical
term, iʿtibārī, which Jurjānī defined elsewhere, referred to an entity that exists only in
the mind of the person considering it and during the time he is considering it.98 Concepts
such as necessity, impossibility, and possibility, as well as unity, eternality, temporality,
qualification, individuation, etc., he says, are purely mental concepts (umūr iʿtibārī)
without any external reference.

In order to understand how Jurjānī interprets iʿtibārī entities, it is useful to focus
on some particular examples and his explanations. In the chapter concerning the modal
categories of existence, he elaborates on Ījī’s arguments to establish the mental
character of concepts such as impossibility, necessity, and possibility.99 A concept like

97 Jurjānī, Sharḥ al-Mawāqif, vol. 3, 112. The distinction between wujūdī and iʿtibārī goes a long
way back, at least to ‘Umar Khayyām, whose terminology is then appropriated by Suhrawardī. See

98 Jurjānī, Taʿrifāt, 34 (entry on amr iʿtibārī).

impossibility, Jurjānī says, is purely mental because it is a property of an individual which does not exist externally. An individual not existing externally cannot be qualified with an externally existing property. The reason why concepts like necessity and possibility are purely mental, again, consists of arguments by contradiction (which though illuminating, involve more detail and are not relevant for our purpose). More pertinent to our focus, Ījī in the main text provides a general rule (ẓābiṭa), comprising of two principles (qāʿida), to distinguish whether a given concept is iʿtibārī or not.100 Jurjānī first acknowledges that the rule is taken from Suhrawardī (d. 1191), whom he refers to as Sāhib al-Talwīḥāt (author of al-Talwīḥāt), and then proceeds to explain the two principles and their usefulness.101

The first criterion of mental concepts is that “anything whose existence in the external world necessitates the repetition of its species must exist only in the mind, not in the external world, because otherwise it would lead to an infinite regress.”102 Jurjānī explains the criterion. Consider a certain kind of species (or concept) such that if one assumes an individual of that species to exist in the external world, it entails that the individual is qualified with that species. The entailment actually necessarily implies that the species will exist in the individual twice, once as the quiddity of the individual and next as its quality. Such a species, Jurjānī says, will only be mental, having no existence

100 Sharḥ al-Mawāqif, vol. 3, 119. (hereafter, abbreviated as “SM”)
in the external world, because otherwise it would lead to an infinite multiplication of external entities sequentially existing together. Illustrating the principle, Jurjānī shows that eternity (qidam), occurrence (hudūth), continuance (baqāʾ), being-an-object (mawṣūfiyya), unity (waḥda), individuation (taʿayyun), and other similar mental concepts end up in infinite regression if one supposes their external existence, and hence are only iʿtibārī.103

The second criterion is that “every attribute which does not necessitate it being posterior to the existence of its object is mentally constructed (iʿtibārī).”104 Jurjānī clarifies the statement. Consider a certain attribute which does not necessarily come posterior to the existence of its object in the external world. Such an attribute is necessarily mental (iʿtibārī). This is because if it had external existence, then it leads to an impossible situation where one could qualify a quiddity that as yet does not exist in the external world with an attribute that however exists externally. Jurjānī shows that existence,105 origination, essential (dhātiyya), and accidental attributes (ʿaraḍiyya), among others, are included in this category, since for all these attributes it is not

103 Ibid., 120-1.
104 Ibid., 122. In his gloss on Maṭāliʿ, Jurjānī mentions the rule as: every attribute (ṣifa) which can come prior to the existence of its object is necessarily iʿtibārī. See Jurjānī, Ḥāshiya Maṭāliʿ, 116. This is because for a real attribute (i.e., having external existence), it is impossible (muḥāl) that the attribute occurs before the existence of the subject. The impossibility does not hold for iʿtibārī attributes. For parallel discussion concerning the iʿtibārī nature of necessity, possibility and impossibility, see Ḥāshiya ʿala Maṭāliʿ, 157.
105 Existence, based on the assumption that it is super-added to the quiddity, becomes from the secondary intelligibles, since it does not entail that its establishment for the quiddity occurs posterior to the existence of quiddity. Rather such a situation is impossible.
necessary that they come posterior to the establishment of their objects in the external world.

Finally, in order to underscore the significance of the two criteria, Jurjānī informs us that they offer a general principle and actually serve as a basis for universal concepts applying at several places. And, so, he advises his reader that one should memorize it, seek support with its understanding, and utilize it at those occasions which concern it so that one can understand the conditions of mental entities.\(^{106}\)

Let us take stock of the situation. A particularly important point that becomes clear from following Jurjānī’s discussion across his philosophical works is the two-pronged strategy he explicitly deploys to deal with the issue of mental concepts and the way in which they are distinguished from concepts having external reference. On one hand, he has to deal with the confusion that arises when one conflates mental entities with those having external existence. The distinction between iʿtibārī and wujūdī concepts is primarily intended as a remedy to this fallacy, furnishing, as it does, a clear-cut division between the two classes of concepts, accompanied by a handy general principle to consult in case there is any doubt. Though it remains unclear how common this fallacy was at his time and who these ideas belong to, Jurjānī nevertheless over and again displays great concern to distinguish between the two classes.

But this clear-cut division might give a false impression about the nature of mental entities, namely that they have no relation to the external world at all, which

\(^{106}\) Jurjānī, *Sharḥ al-Mawāqif*, vol. 3, 123.
precisely leads to the second horn he has to wrestle with. The mistake, this time, arises from an incorrect reasoning which proceeds from a given fact of a certain mental concept, having no external existence, to incorrectly infer that it cannot qualify anything in the external world. Jurjānī’s direct response to this error is his oft-cited maxim, acquiring several articulations by now, that a non-existing predicate-quality can in fact qualify a thing in the external world. That the idea is so commonly and forcefully repeated throughout several of his works, it indeed features centrally in Jurjānī’s overall project; moreover, that he also uses it in order to address and resolve different philosophical issues, Jurjānī may have also contributed towards securing its place in the intellectual discourse of the time. In fact, as we will see, the argument forms the fundamental premise in Jurjānī’s defense of mathematical and astronomical knowledge. In this respect, a non-existing concept is not to be treated as empty fiction, but can actually tell us something valuable about the real world.
TABLE 3.1
SCHEMATIZATION OF JURJĀNĪ’S UNDERSTANDING OF THE TRUTH OF JUDGMENTS
BASED ON HIS STATEMENT IN ḤĀSHIYA ‘ALĀ SHARḤ TAJRĪD

<table>
<thead>
<tr>
<th>Judgment</th>
<th>Subject-thing</th>
<th>Predicate-quality</th>
<th>Examples</th>
<th>Truth = Conformity With</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>External</td>
<td>External</td>
<td>“Zayd is a man”</td>
<td>External world</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Snow is white”</td>
<td></td>
</tr>
<tr>
<td>Type 2</td>
<td>Mental</td>
<td>Mental</td>
<td>“Genus is universal”</td>
<td>Nafs al-amr</td>
</tr>
<tr>
<td>Type 3</td>
<td>External</td>
<td>Mental</td>
<td>Case 1: Subject is qualified with predicate-quality irrespective of whether the subject exists in the external world or not “Human is possible” “Four is even”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Case 2: Subject is qualified with predicate-quality in the external world “Zayd is blind”</td>
<td>Case 2: External world</td>
</tr>
<tr>
<td>Type 4</td>
<td>Mental</td>
<td>External</td>
<td>Impossible case</td>
<td></td>
</tr>
</tbody>
</table>
3.2.5 Conclusion

To summarize: Our concepts are not an undifferentiated bog, and Jurjānī makes an admirable attempt to come to grips with the different kinds of universal concepts in the position of the predicate. In the metaphysical framework he adopts, every concept has two distinct aspects. The quality (or property) indicated by the concept occurs somewhere, and qualifies some subject-thing. The predicate-quality can occur in the external world, or in the mind. Likewise, the predicate-quality can qualify an externally existing entity, or another concept in the mind (i.e., mental entity), or even some entity that is established according to nafs al-amr, irrespective of whether in the external world or in the mind. With these considerations in mind, one can do some worthwhile conceptual geography, distinguishing six regions of logical space, although Jurjānī notes, correctly, only four to be actually possible:

1. A quality which occurs in the external world, and qualifies an external object, such as whiteness, horse, man.
2. A quality which occurs in the external world, and qualifies a mental object (impossible situation).
3. A quality which occurs in the external world, and qualifies an object according to nafs al-amr, irrespective whether in the external world or the mind (impossible situation).
4. A quality which occurs in the mind, and qualifies an external object, such as blindness in the true statement, “Zayd is blind.”

5. A quality which occurs in the mind, and qualifies a mental entity (a concept in the mind), such as universality in the example, “Genus is universal.”

6. A quality which occurs in the mind, and qualifies something which is established according to nafs al-amr, irrespective of whether in the external world or in the mind, such as universality and evenness in the examples, “Horse is universal” and “Four is even.”

Cases (2) and (3) amount to an impossibility, according to Jurjānī, based on the premise that an externally existing quality cannot qualify something which does exist in the external world.

Furthermore, for Jurjānī, predicates come in two varieties. The first kind, known as real predicates, is those that correspond to an entity in the external world, such as the predicate-quality “whiteness” (Case 1). The second kind is iʿtibārī or mentally-posited predicates which have no corresponding referent in the external world and are simply mental (Cases 4, 5 and 6).

Importantly, that they are mental predicates-qualities, however, does not mean they have no relation to reality or cannot provide judgments that are true. On the contrary, mental predicates-qualities can provide true judgments and can stand in a certain relation with reality. This is precisely where Jurjānī’s schematization of true judgments proves useful, for it allows one to clearly identify two distinct kinds of judgments where a mental predicate-quality is in contact with something real and true. First, a mental predicate-quality can qualify an object in the external world. Though the predicate-quality itself is non-existing, but insofar as it qualifies an existing object, it has
a foundation in reality which must not be overlooked. And though this foundation is “remote and mediate,” it is real nonetheless. Second, a mental predicate-quality can qualify an object in nafs al-amr, irrespective of whether the object exists or not. Again, though the predicate-quality is non-existing, but insofar as it qualifies a thing that is present in nafs al-amr, it has a certain basis in reality. Though it remains to be seen how Jurjānī understands the notion of nafs al-amr, it is already clear that it cannot be treated as false or empty fictions of the imagination inasmuch as he holds it to be a marker of truth. Instead, as we shall see, Jurjānī will interpret nafs al-amr to refer to the objective reality of the thing itself.

Up to this point, Jurjānī has been speaking about the different kinds of truth-bearing judgments and the conditions of truth for each of them. And these conditions, he is saying, can broadly be understood as a requirement of conformity with either the external world or nafs al-amr. In his subsequent remarks in the Ḥāshiya, he turns to the interpretation of the external world and nafs al-amr. What is the meaning of external world and of nafs al-amr? In order to answer this question, he draws on an important issue which was particularly disputed within the philosophical discourse during the post-

108 See Robert W. Schmidt, The Domain of Logic According to Saint Thomas Aquinas (The Hague: Martinus Nijhoff, 1966) (who draws attention to two classes of intentions: accidents of real subject, and accidents of non-real subject, or intentions of an intention. “The latter is another step removed from the real. And yet its contact with the real must not be overlooked. If they are intentions of an intention, they look to that which itself looks to and mirrors the real. And if they are accidents of a subject, they pertain to a nature which is verified in reality. Thus it is again seen that, though the proximate foundation of logical intentions is only in the mind, they have a foundation in the real; and though this foundation is remote and mediate, it is real none the less”).
classical period, that of the notion of mental existence and its distinction from extra-
mental (or external) existence. This forms the focus of our next section.

*  *  *

3.3 Mental Existence (*wujūd dhihnī*) in the Thirteenth- and Fourteenth-Centuries

3.3.1 Introduction

Theories regarding the status of non-existent entities in Islamic rational theology, particularly the disputes between Ashʿarites and Muʿtazilities, provide an important early context in which the discussion of mental existence can be placed.\(^\text{109}\) However, it was Ibn Sīnā (d. 1037) and his elaboration of the conceptual distinction between essence and existence that provided the dominant framework in which subsequent authors placed and understood mental existence. To be sure, Ibn Sīnā himself never substantially used the term mental existence as a philosophical topic, and can only be said to have suggested it insofar as he defined knowledge as the acquisition of the form of the perceived objects in the mind. Instead, it was following Ibn Sīnā, as scholars took to reflecting on the relation between essence and existence and the value of knowledge, that mental existence properly emerged as a properly philosophical subject. They not only discussed mental existence in their own analyses, but also applied

the term to earlier theologians. In claiming that, say, Ashʿarī (d. 935) rejected mental existence, or the Muʿtazilites accepted it, they applied the later terminologies and analytical categories to the interpretation of the positions of theologians predating Ibn Sīnā. As a contemporary author has noted, such an anachronism is typical of the amalgamation of theological and philosophical positions that one sees not only in Jurjānī or the works on whom he is commentating, but rather throughout the philosophical-theological discourse of the post-classical period itself.110

As a proper term, mental existence can be traced back to Rāzī (d. 1210) who took to critically evaluating Ibn Sīnā’s philosophical system. A most important aspect of his attitude towards Ibn Sīnā’s ontology is that he denies the very notion of mental existence on the grounds that one cannot conceive of entities which have no external existence.111 His rejection derives from a particular understanding of what mental and external existence means for him, which, though important, does not directly bear on this overview. However the relevant historical point is that while Rāzī’s influence continues to dominate the later tradition, particularly among the Sunnī mutakallimūn, his position on mental existence seems to be rejected.

In the following sections, I discuss this development of how scholars following Rāzī until Jurjānī return to accepting mental existence. Already during the earliest phase of reception of Rāzī’s position, Abharī (d. 1264), Ṭūsī (d. 1274), Kātibī (d. 1276), and

110 Ibid., 125.
111 See ibid; and Bilal Ibrahim, “Freeing Philosophy from Metaphysics,” chs. 5 and 6.
Bayḍāwī (1286) return to accepting mental existence. The trend continues in the following generation of scholars as Iṣfahānī (d. 1348), Īji (d. 1355) and Ibn Mubārakshāh al-Bukhārī (d. 1359), often commentating on the previously mentioned authors, further refine the concept of mental existence and respond to potential objections. Jurjānī’s (d. 1413) glosses on the commentaries of a number of second-generation authors (including Īji, Iṣfahānī and Bukhārī) provide a still later stage in this trend to return to mental existence. Yet there is a clear recognition on Jurjānī’s part that the dispute on mental existence is largely verbal arising from the fact that those who deny and affirm it are simply referring to two different conceptions. The arguments that establish and negate mental existence, in substance, are not contradictory, but rather conform to the basic idea of mental existence when properly interpreted. Several of his works are concerned precisely with providing such an interpretation as well as raising other significant points related to our general discussion.

In order to examine this development, I rely on three main texts of the period and on that particular chain of commentary and gloss (or second-order commentary) of each main text which culminates with Jurjānī. In this way, the discussion also provides a sense of Jurjānī’s attitude towards the authors upon whom he is commentating (vertical contextualization), and likewise comparing Jurjānī’s account across the three works

112 For Abhari’s rejection of mental existence, see Eichner, “Essence and Existence.” For the remaining thinkers, see below section which examines their works.
helps to reveal a general consistency in his thinking about the issue (horizontal contextualization). These works are:

1. **Tajrīd al-iʿtiqād** by Ṭūsī
   - **a.** C¹: Iṣfahānī, entitled, *Tasdīd al-qawāʿid*
     - **i.** C²: Jurjānī
2. **Ḥikmat al-ʿayn** by Kātibī
   - **a.** C¹: Ibn Mubārakshāh al-Bukhārī
     - **i.** C²: Jurjānī
3. **Mawāqif fī ʿilm al-kalām** by Ījī
   - **a.** C¹: Jurjānī

3.3.2 **Tajrīd al-iʿtiqād (Ṭūsī – Iṣfahānī – Jurjānī)**

Concerning the proof for affirming mental existence, Ṭūsī writes:

**Text 1.** 
“[Existence] can be divided into mental (*dhihnī*) and external (*khārijī*); otherwise, true [propositions] (*al-ḥaqīqa*) become false.”

Iṣfahānī clarifies what is meant by *ḥaqīqī* propositions and the reasoning by which they serve to establish mental existence.

**Text 2.** “There is disagreement about mental existence. One group has proceeded to reject it. Those who verify (*muḥaqqiqūn*) have established it. The author [i.e., Ṭūsī] has argued towards it establishment by the [reasoning] that if quiddity has no existence in the mind, then this will falsify a true proposition (*al-qādiyya al-ḥaqīqiyya*). It is a proposition wherein one predicates something for a subject which is true for it in actuality (*biʿl-fiʿl*), and [predicates

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113 Ṭūsī, *Tajrīd*, 63.
it] more generally irrespective whether the subject exists in the external reality or not. The consequent is false.

The necessary entailment proceeds because there is no mental existence, and we [also] cannot confine [such propositions] to existence in the external reality. Thus, affirmative judgments, which require the existence of their subjects, and being in a state when their subjects are not existents, are necessarily false due to the absence of the condition of their correctness, which is the existence of subject. Their subjects do not exist externally nor in the mind when one assumes that mental existence is not established. Hence, it entails that ḥaqīqī propositions are false. [But] according to verification, ḥaqīqī propositions are well-recognized and true.”

The gist of Isfahānī’s argument is that a ḥaqīqī judgment applies to its individuals generally irrespective of whether they exist in the external reality or not. Additionally, that one can make true affirmative judgments in ḥaqīqī propositions means that the subject of the ḥaqīqī judgment must have some existence. Thus, since this existence cannot be in the external reality, it must be in the mind.

In his exposition of the above passage, Jurjānī articulates the definition of ḥaqīqī propositions differently, by importantly referring to the concept of nafs al-amr.

**Text 3.** “Judgment in a universal ḥaqīqī proposition is upon all [such individuals] which are an individual with respect to nafs al-amr for the universal concept, occurring in terms of meaning (ʿunwān), irrespective whether the individual exists in the external reality or not.”

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115 Jurjānī, *Ḥāshiya Sharḥ Tajrīd*, ed. Ḥūriyya Shujāʾī Bāghīnī (Qum, 1379), 85.
According to Jurjānī, the judgment in a ḥaqīqī proposition is said to apply to its individuals not externally nor mentally, but with respect to nafs al-amr. The latter is viewed as a mode of realization that derives from the very meaning (or definition) of the individual, and thereby is different from the evidently ontological modes of external reality and the mind.

As an example of a ḥaqīqī proposition, he cites a mathematical judgment and utilizes it to illustrate that if mental existence was not established, it would falsify mathematical judgments, and in general all judgments which are affirmative, universal and true.

Text 4. “When you say that “the sum of the angles of a triangle is equal to two right angles” is a ḥaqīqī proposition, then the judgment comprises all such individuals for which it holds true in nafs al-amr that it is a triangle, and is not limited to triangles existing externally at a particular time. Rather it includes them and also those other than them, which do not exist at all in a thing at a particular time, being from the individuals for which the property of triangle holds true due to their essential definition. It is clear that judgment concerning them includes individuals not existing externally at all, and if they had no mental existence, one cannot predicate affirmation of them necessarily. This is because predicating affirmation depends on the establishment of the subject, or the thing which is predicated. And if there is no establishment for a thing either in the external reality or mind, one cannot conceive establishing a predicate (maḥmūl) for it, since establishing a thing for another thing depends on the establishment of the other thing in itself. Therefore, if mental existence is not established, all judgments that are affirmative, universal and real will become absolutely false.”

116 Ibid., 85.
Continuing with his exposition, Jurjānī then removes a potential misunderstanding that may arise in interpreting the distinction between ḥaqīqī and externally true (or khārijī) propositions. The basic distinction of course is that the former apply to all the individuals of its class, irrespective of their external existence, while the latter apply only to individuals possessing external existence. In order to clarify a further distinction, he refers to the durable notions of universals and particulars. According to Jurjānī, while both ḥaqīqī and khārijī provide true judgments, it is only the ḥaqīqī which provides a concept (or predicate) that is universal. The concept derived from an external judgment may be an object of thought and so possess some generality. But such a concept can only superficially be called a universal for it is in fact a particular. He explains:

**Text 5.** “The statement does not mean that external propositions are not true. Instead what is meant is that universals which are extracted from the external reality are not universals, but they are actually particulars. Universal external propositions are false in terms of being universals, even though they are true in themselves, as opposed to the real propositions which are true in terms of being universal and also in terms of themselves. For this reason, they are well-recognized among the verifying scholars in the form of propositions of geometry and arithmetic. Since these propositions are not specific to externally existing things, but are more general than them and includes other than them, because their judgments are the necessary attribute of their quiddities (lawāzim al-māḥīyyat). In the case of external propositions, only scholars who have studied superficially have recognized them. Hence, there is no firm reliance about such propositions.”

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117 Ibid., 86.
The above passage also reveals a feature about how Jurjānī understands the propositions of geometry and arithmetic. Insofar as the judgment in such propositions applies to all individuals of its class whether the individual is existing or not, they provide with universal concepts and so are real propositions. More specifically, such propositions provide concepts (or predicates) that are the necessary attributes of their subjects. That is to say, the concepts qualify their subjects independent of the fact whether the subject exists externally or not. This then is precisely the reason why geometrical and arithmetical objects (like numbers, shapes and equations), while admittedly not existing in experience except as a property of some particular thing, nevertheless can be correctly conceived or imagined in the abstract, separate from any particular thing.

Having explained Ṭūsī’s proof for mental existence based on ḥaqīqī propositions, Jurjānī turns to another of the falāsifa’s proof (not mentioned by Ṭūsī) which he deems provides the basis for the first. This is the proof based on the possibility of conceiving and judging impossible entities, about which Jurjānī writes:

**Text 6.** “Know that the mentioned proof for mental existence returns in reality towards what they have indicated famously for its establishment, that is, we can make judgments with established entities for that which has no existence externally, for instance, impossibility and joining two contraries. Hence, we can judge that an impossible, for example, is particular than a non-existent ... and that it is known and is opposed to possible existence and likewise other affirmative judgments that are true in nafs al-amr. It is
therefore necessary that its subject is established in general and if not in the external reality, then in the mind.”

The general thrust of the argument is that whatever can be affirmatively judged must have some establishment. An impossible entity, say, conjunction of opposites, by definition has no external existence. But since one can conceive and affirmatively judge it, it must have an establishment, which if not in the external reality, must be in the mind.

Jurjānī proceeds to respond to three objections against this proof. He first clarifies that the proof relies on entities about which one can make judgments that are positive affirmations, not negative assertions. The other two points are more substantive.

He clarifies that in making an affirmative judgment, one qualifies the impossible entity not in the external reality or the mind, but rather in nafs al-amr.

Text 7. “Second: we do not claim that one predicates of a subject which exists externally, but rather predicates it of a subject in nafs al-amr. We know that the judgments are true, hence these predicates are established for their subject in nafs al-amr; and we know that this is dependent on the fact that the subject exists in nafs al-amr; if not in the external reality, then in the mind.”

One notes here how Jurjānī construes nafs al-amr to have an ontological aspect as well. Given that one qualifies the entity in nafs al-amr, it entails that the entity is present in nafs al-amr. That this in turn entails that it is either present in the external

\[118 \text{ Ibid., 87.} \]
\[119 \text{ Ibid.} \]
world or the mind provides for an interpretation of *nafs al-amr* as a mode of being that encompasses both kinds of existence. Thus, on one hand, *nafs al-amr* indicates a mode of realization that derives from the essential definition of an individual, but on the other, it also seems to encompass the ontological modes of external and mental existence. Both aspects, as we shall see later, are indeed affirmed by Jurjānī.

The proper interpretation of mental existence is at stake in the final objection. Jurjānī admits that while the existence of things in our perceptual faculties is a much disputed question, however that is not how he wishes to construe the notion of mental existence. Instead, the important distinction he calls to attention is that between a mode of being upon which the customary effects and external judgments of a thing are based and another which is not like that. The latter is what he means by mental existence. He writes:

**Text 8.** “Third, we only intend by mental existence an existence which is distinct from foundational (*aṣīl*) existence, which is the basis of effects and the manifestation of judgments. For example, fire has an existence from which its effects follow, and which manifest its judgment concerning burning, luminosity, and others. This existence is called concrete, external, and foundational existence, and is a matter where there is no doubt. The disagreement lies in whether fire has an existence other than this, on which such effects and judgments do not depend, irrespective whether this other existence is in our perceptual faculties or otherwise. The existence of things in the noble principles is sufficient for us, and there is no need for us to establish its existence in our faculties. This second existence is called mental, shadowy, and non-real existence.”

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120 Ibid.
Mental existence, properly speaking, is not strictly interpreted as the existence of a thing in a particular place, either in the perceptual faculties or the noble principles. In other words, it is not concerned with “where a thing exists” but rather “how a thing exists”.

So much for the first statement of Ṭūsī concerning the proof for mental existence. Ṭūsī also makes a second point which serves as a response to the objection of those who deny mental existence.

Text 9. “The existents in the mind are actually forms differing greatly in their necessary attributes.”

The articulation of the actual objection is presented by Iṣfahānī.

Text 10. “This is a reply to the objection of those who deny mental existence. The explanation of their doubt is that if the quiddities had mental existence, it would entail that the mind is qualified with the conjunction of opposite qualities and what is contradictory for it. The consequent is blatantly absurd. The exposition of entailment is that if hotness and coldness and straight line and circle were to acquire existence externally, it would entail that the mind is hot, cold, straight and circular, since the existence of these things in that place necessitates that they qualify that place.”

Iṣfahānī then clarifies Ṭūsī’s reply on how the objection can be removed.

Text 11. “The exposition of reply is that acquiring the concrete nature (ʿayn) of these things in the place necessitates that the place is qualified with them. However, why would the acquisition of their forms and their resemblances necessitate likewise? What is existent in the mind are the forms of these things and their

121 Ṭūsī, Tajrīd, 64.
122 Iṣfahānī, Sharḥ Tajrīd, 11b.
resemblances, not their individual nature (nafsihā). They do not necessitate that the place is qualified with them.”¹²³

The gist of the reply is that if what is acquired in the mind is the concrete individual, only then will it necessitate the absurd conclusion that the mind is simultaneously qualified with opposite qualities. But what is actually acquired in the mind are not concrete natures, but rather forms of things, and these forms do not entail the same judgment as the concretely existing things.

Responding to the objection, Jurjānī draws on the same basic idea as Ḥṣfahānī, but refines it further by referring to a quiddity and its distinct modes of existence.

Text 12. “Reply: Indeed, the existent in the mind is the quiddity of fire. However it exists by means of mental and non-real existence, which does not lead to its effects or towards manifesting its judgments. The being of the place of hotness being qualified with its judgments is related to its concrete existence. Likewise, its contradiction with coldness actually takes place in concrete existence, and not shadowy existence.

In general, when the existent in the mind is the quiddity of fire existing by means of non-real existence, it does not entail that the mental existent is shared with external existent, except in the necessary attributes of quiddity (lawāzim al-māhiyya). The examples you have mentioned of qualifying the substrate (maḥall) and contradictory properties are not its necessary concomitants. Instead they are dependent on external existence and its necessary concomitants. With this explanation, one can dispel all doubts which occur in this discussion.”¹²⁴

¹²³ Ibid.
¹²⁴ Jurjānī, Ḥāshiya, 89.
According to Jurjānī, a quiddity can exist by its external (or concrete) mode of existence which will lead to its customary effects and non-necessary judgments, like the hotness of fire. Alternatively it can exist by its mental (or shadowy) mode of existence which does not result in such effects and judgments. Each mode of existence is associated with different judgments. Moreover, it is only in the set of judgments that pertain to the necessary attributes of a quiddity that the mental and external modes overlap. Here since the judgment of qualifying a substrate with hotness or coldness is not a necessary attribute of a quiddity, thus the judgment does not apply to the mental mode of existence, but remains specific to only the external mode.

3.3.3 Ḥikmat al-ʿayn (Kātibī – Ibn Mubārkshāh al-Bukhārī – Jurjānī)

As a preliminary remark, since many of the themes and arguments detailed above will be repeated in the works considered here, I will resort in this section to providing a general structure of the discussions along with highlighting the main philosophical and comparative points and those important additions not previously mentioned.

An important first point concerns the viability of another context wherein one may attempt to situate the discussion of mental existence, namely, the definition of knowledge. Preceding the actual commentary on Kātibī, Ibn Mubārkshāh locates the dispute on the issue of mental existence in the dispute between the falāsifa and the mutakallimūn on the proper understanding of the definition of knowledge.

Text 1. “Know that thinkers have disagreed concerning mental existence. Philosophers have established it, while the theologians
have rejected it. The disagreement actually emerges from their dispute about the interpretation of knowledge. When according to the philosophers, knowledge is understood as the acquisition of the form of the known in the mind, the statement entails mental existence for them. According to the theologians, when they understand it as a relation established between the knower and the known or a real attribute with which the knower stands, thereby affirming for the knower this relation, they have rejected it.”

Knowledge understood as the form of the thing in the mind goes back to Ibn Sīnā, and, as Ibn Mubārakshāh tells, they may have taken this view of knowledge to entail mental existence. Unlike the falāsifa, the mutakallimūn were of the position that knowledge referred to a relation between the known and the knower or to a property of the knower which subsists with him or her, and this, he says, would have forced them to reject the falāsifa’s conclusion. But what exactly does Ibn Mubārakshāh take the mutakallimūn to be rejecting – here lies a particular ambiguity. Is it simply a rejection of the notion of mental existence? To be sure, this comes across as the more apparent and suggestive meaning of the passage. Yet in that case it is not at all evident how a view of knowledge as a relation or property amounts to a proof for the rejection of mental existence. In fact, some mutakallimūn while understanding knowledge as a relation or property actually do proceed to affirm mental existence. Alternatively, what the mutakallimūn may have rejected, in Ibn Mubārakshāh’s view, was the idea that the philosopher’s definition of knowledge actually entails mental existence. This interpretation seems to be more consistent not just logically but also with respect to

125 Ibn Mubārakshāh, Sharḥ Hikmat al-ʿayn, 18 (containing the main text, commentary and gloss).
historical reality, especially given that a number of mutakallimūn of his time took to accepting mental existence. In any case, at least this second interpretation is how Jurjānī understands the situation when he comments on the above passage.

Text 2. “They have rejected it: that is to say, they reject that the philosophers’ statement entails mental existence. This is because the preceding does not allow that one makes it the cause of their rejection [of mental existence]. Indeed, Imam [Rāzī] upholds that knowledge is an attribute or a relation, and along with it also upholds mental existence because it is permissible that mental existence is other than this relation or attribute.”

Jurjānī in this way disentangles the two philosophical questions insofar as he sees that the rejection of mental existence is not entailed by the mutakallimūn’s understanding of knowledge as a relation or property.

Turning to the main text of this chain, Kātibī argues for the position of mental existence on two counts. In the first proof, he argues by the standard reasoning that one can conceive of entities having no external existence, for example, as Jurjānī glosses, the conjoining of contrary properties or ruby mountains. Yet, Kātibī continues, one can make judgments about them by predicating qualities of them that are true conforming to reality. Applying the principle that an attribute can be predicated of something only once that thing is established, it entails that the subject is established. And if it is not established in the concrete world, it is established in the mind, thereby establishing

\[126\] Ibid., 19.

\[127\] Ibid.
mental existence. Ibn Mubārakshāh raises three objections that one may raise in this argument, but then answers all three to establish mental existence. Jurjānī comments sparsely, and mostly to clarify. Yet he adds that the judgments in question that are established for such entities should not be taken to include the meaning of negation, but rather only refer to affirmative judgments which predicate a positive quality for a subject. Predicating a negative property does not entail the establishment of the subject, and hence the argument will not follow in that case.

The second, and final, proof Kātibī states is the argument from universal true propositions (ḥaqīqī propositions) already seen in Ṭūsī. Clarifying the argument, Ibn Mubārakshāh says that such propositions have mental existence because they have an existence necessarily. But this necessary existence cannot be in concrete individuals since whatever exists concretely does so as particulars – thus entailing that they have mental existence.¹²⁸

Jurjānī in further clarifying the argument repeats many of the same themes seen earlier. He responds to the objection that the argument would entail that coldness and hotness will exist in the mind, qualifying the mind with both qualities simultaneously. Real existence is one which is responsible for effects and the manifestation of judgments, and is unlike shadowy existence. What is acquired in the mind is the quiddity of hotness existing through the mode of non-real (or mental) existence. The occurring of hotness and coldness in a substrate where they exist in the mode of real existence

¹²⁸ Ibid., 20.
necessitates the contradiction that the substrate is both hot and cold together. However, when they occur in a receptacle where they exist in the mode of shadowy existence, it does not necessitate the same contradictory result. The relationship between the mental forms and the soul where they reside is not the same as the relationship between individual, concrete entities and their receptacle. Hence, the soul is not qualified with opposing and contradictory qualities.

Kātibī notes that one may raise an objection against mental existence by denying the important assumption that one can conceive of things having no existence in the external world. Instead, the objector may say that whatever we can conceive of has an existence in the external reality. This is because the form of the object one conceives may exist independently in itself, invoking the example of Platonic forms, or exist in something which is hidden from us, such as the Active Intellect which is taken by the philosophers to contain the impression of the forms of all things. Though Kātibī does not name the objector, it is clear whom he is referring to, for this formed one of the classic objection raised by Rāzī against mental existence.

Though Kātibī does not respond to the objection here, he considers it to be blatantly false (mukābara), a point noted by Ibn Mubārakshāh. The reasoning is most clearly observed in Jurjānī. He states that one can conceive of impossibilities like the conjunction of contrary qualities or ruby mountains; however, they have no forms which

\[129\] Ibid., 21.
\[130\] Ibid., 22.
are self-subsistent and can stand on their own. Thus they are not like the Platonic forms, the idea of which in any case has been rejected through several arguments. Concerning the second possibility, he first clarifies that even the philosophers do not maintain that such impossibilities have an existence somewhere hidden from us where they exist in the concrete (and real) mode of existence, because the view clearly goes against the understanding of an impossibility. At most, what is intended by those who hold them to have an existence in, say, the Active Intellect, is that these impossibilities exist through the mental (or shadowy) mode of existence. As a point relevant for a later discussion, it is worth noting that Jurjānī does not include himself here as subscribing to this view of forms existing in the Active Intellect, even while he is willing to grant it to someone else seeing that it has no bearing at least on the establishment of mental existence.

A significant point that Jurjānī clarifies in the discussion concerns what is precisely meant by the expressions “existence in the external world” (wujūd fīʾl-khārij) and “existence in the mind” (wujūd fīʾl-dhihn). Kātibī quotes a hypothetical objector who may argue that an existent in the mind exists in the external reality since mind is an externally existing thing. The idea is that whatever exists inside an existent in the external reality is itself an existent in the external reality. Upon this reasoning, it is then futile to distinguish between external and mental existence since whatever exists in reality does so only externally. The only difference is that sometimes a quiddity may exist in itself (bi nafsiha), such as human or tree, and at other times may exist through

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131 Ibid., 23.
the mediation of the soul (fīʾl nafs). While one may call the former concrete existence (wujūd ʿaynī), and the latter mental existence (wujūd dhihnī), both are really concrete existence (wujūd ʿaynī).132

Jurjānī responds that the entire objection is in fact based upon a false imagining (tawahhum fāsid), which is the idea that the external world (al-khārij) is like a receptacle (ẓarf or container) for existence, such as a house is for a ring, and mind (al-dhihn) is also a receptacle for existence, such as a ring is for a pearl.133 This error, he states, arises due to the addition of the word “fī” (i.e., in) which when utilized in the statement “fīʾl-dhihn” or “fīʾl-khārij” is usually taken to indicate the meaning of ẓarfiyya (container or receptacle). However, when one verifies (ḥaqqaqa) its meaning, one recognizes that the proper interpretation of the phrase “wujūd fīʾl-khārij” is foundational existence (al-wujūd al-aṣīlī), which provides the basis of effects and the bearer of judgments, and the proper interpretation of the phrase “wujūd fīʾl-dhihn” is mental existence (al-wujūd al-dhihnī), that is, shadowy existence (al-wujūd al-ẓillī), which is not like the first. This exposition, he says, renders the entire objection void. Jurjānī proceeds to list other reasons why the objection fails; however, it is the above response which clarifies an important aspect of how Jurjānī understands the two types of existence.

In Jurjānī’s vocabulary, the expressions “in the external world” and “in the mind” do not properly refer to some place in which things reside or inhere. The external reality

132 Ibid.
133 Ibid.
(al-khārijī), for example, is not a place in which things exist. Otherwise, as he, in fact, argues, one will have to place this place in another place, and that place in another place and so on ad infinitum. Rather they denote different modes of existence.

Something existing in the external reality means that it has an existence to which effects and judgments can occur. Its existing in the mind means the opposite.134

3.3.4 Mawāqif (Ījī – Jurjānī)

Ījī’s view on mental existence acquires a particular significance not only in our comparative context but also in the development of Ash‘arite doctrine. As opposed to Tajrīd al-l’tiqād and Ḥikmat al-‘ayn, which are works favorably disposed to the philosophical framework developed by Ibn Sīnā, Ījī’s Mawāqif is written from the standpoint of an Ash‘arite theologian who adopts a particularly critical stance towards that framework, even as it consciously appropriates certain of its elements. Addressing the entire spectrum of issues found conventionally in philosophical and theological

134 This is a particularly important point to keep in mind in order to avoid ambiguities in translation of words such as wujūd khārijī, wujūd dhīhnī and khārij. As clearly observed, Jurjānī’s careful and considered (taḥqīqī) position is that external and mental existence (wujūd khārijī and wujūd dhīhnī) refer primarily to two distinct modes of existence, as opposed to two distinct places (or containers). External existence refers to an external mode of existence, that is, an existence to which effects and judgments can occur; whereas, mental existence refers to a mental mode of existence, that is, an existence to which such effects and judgments do not occur. It is then only in a secondary and derived sense that one can refer to them as two distinct realms (or places, spaces, repositories, etc.). That said, in general, Jurjānī continues to use the words in both senses (mode and objective sense) across his works. Accordingly, one may translate khārijī, for example, as ‘in the external world,’ or, dhīhnī as ‘in the mind,’ in line with its secondary connotation. However, strictly speaking, a thing in the khārij means that it exists by the external mode of existence, while a thing in the mind means that it exists by the mental mode of existence. A contemporary author makes this observation in the case of Mulla Ṣadrā to suggest that it is better to construe the phrase as “externally” (khārijī) and “mentally,” (dhīhnī) rather than “in the external world” and “in the mind.” See Ibrahim Kalin, Knowledge in Later Islamic Philosophy: Mulla Ṣadrā on Existence, Intellect, and Intuition (New York: Oxford University Press, 2010), 11. In general, I am sympathetic towards this suggestion in the case of Jurjānī.

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works, Ījī lays out the full diversity of often conflicting positions of various Muslim actors, including the Mu’tazilites, philosophers, and earlier and later Ashʿarī scholars, along with their arguments and counter-arguments, and assesses their weaknesses and strengths in what ultimately can be seen as a broad-based defense of Ashʿarite doctrine.

That in this rather hostile (towards falsafa) environment Ījī appears willing to accommodate the philosophers’ position in favor of mental existence is most unusual but it also tells us something about the favor mental existence had gained among the Sunnī mutakallimūn since Rāzī.135 One important reason for this development lay in the increasing attention on the part of these later scholars towards precisely explicating what the concept of mental existence really meant. As such, it is instructive to explore Ījī’s views in itself before turning to Jurjānī.

Ījī begins by noting that the issue of mental existence is divided between the philosophers, whom he attributes with affirming mental existence, and the theologians, who reject it.136 He reproduces three standard arguments of the philosophers in favor of mental existence, and in all three of them he upholds their arguments, and in fact proceeds to reply to the objections one may possibly raise against their arguments.

**Text 1.** “We can conceptualize that which has no existence in the external reality, for example, the impossible, and the combination

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135 The text proved highly influential in carrying forward Ashʿarite teachings which is clearly established by the long tradition of super-commentaries, glosses, and abridgements which it spawned and which continued till at least the twentieth-century when it was still being taught and studied in Islamic theological schools, such as Cairo’s al-Azhar. See A. I. Sabra, “Science and Philosophy in Medieval Islamic Theology.”

136 I rely on Ījī’s commentary by Jurjānī which contains the main text. For Ījī’s discussion on mental existence, see Jurjānī, *Sharḥ al-Mawāqif*, vol. 2, 169-184.
of opposites, and non-existence as opposed to general existence. We can provide judgments that are affirmative. It leads one to establish (*ithbāt*) these conceptual matters because establishing a thing for some other thing is dependent on the fact that some other thing must be established itself. And since these conceptual matters are not established in the external reality, they must be established in the mind.”

The first proof is the standard argument from impossible entities. One can conceive of entities having no external existence, say, an impossible, and can affirmatively judge them with judgments that are true in *nafs al-amr*. Thus since they can be judged with other things, they themselves must be an established entity. And since entities do not exist externally, they necessarily exist in the mind.

It is worth noting that Ījī, like Kātibī before him, also discusses Rāzī’s objection against mental existence; he clearly identifies him, and, more importantly, proceeds to respond to him by clarifying what he takes to be the proper nature of mental existence.

**Text 2.** “Imām Rāzī replied by denying that we can conceptualize that which has no existence. Rather, whatever we can conceive has an existence that is hidden from us. Either it is self-subsistent, as Plato says, or it subsists through another, as the philosophers say. The forms are impressed, according to them, in the Active Intellect.

Reply: That which is impressed in it, if they are the identities (*huwiyyāt*, or beings), it entails that one establishes the identity of the impossible in the external world (*khārij*), and this is sophistry. If the impressed are the forms (*al-suwar*) and the essences that are universal (*al-māhiyyāt al-kulliyya*), its intention is mental existence (*wujūd dhihnī*). This is because we mentioned that our goal to

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138 Ibid., 174.
establish a genus to distinguish the intelligibles, [which are the essences that are universal], is other than distinguishing by means of identity (huwiyya), which we call external existence (wujūd khārijī) – irrespective of whether the mind concocts the intelligibles [in the mind], or views them in another place [such as the Active Intellect].”

Rāzī had rejected the assumption that one can conceive of entities having no external existence by arguing that whatever one conceives has an existence hidden from us, either standing by itself, like the Platonic forms, or standing by other than itself, like the forms of all things impressed in the Active Intellect, as maintained by the philosophers. Ījī replies that if what is impressed is taken to mean concrete identities, it entails establishing the concrete identity of an impossible in the external reality, which is sophistry. If, however, the impressed are the forms and the quiddity that is conceptualized as a universal, then their meaning we take is mental existence. Our goal in calling them mental existence, Ījī tells, is simply to distinguish the concrete identities, which we call external existence, from these intelligible forms, which are the general quiddities, irrespective of whether the mind concocts such intelligibles or views them in some other place. This identification of mental existence with a quiddity that is conceptualized as a universal is a core point of Ījī’s understanding.

Ījī proceeds to reproduce two further arguments in favor of mental existence, including the one formulated first by Ṭūsī, which argues from ḥaqīqī universal

139 Ibid., 174-6. Text in square brackets is Jurjānī’s comments.
propositions. Finally, he turns to two arguments of those who reject mental existence, whom he acknowledges as the “majority of the theologians” (jumhūr al-
mutakallimīn).

They argue that if conceiving something leads to its occurrence in the mind, it forces the mind to be qualified with it; for example, conceiving hotness and coldness together forces the mind to be qualified with both qualities simultaneously, which is false. They also reject mental existence based on the fact that it is impossible to think that the mind can acquire the reality and the grandeur of phenomena such as mountains and skies. Ījī repeats the standard reply of the philosophers. What occurs in the mind is a form (ṣura) and quiddity (māhiyya), not being (huwiyya) and identity (ʿayniyya).

Something is hot when it stands with the identity of hotness, not when it stands merely with the quiddity of hotness. By the same token, when one conceives a mountain, for example, what is acquired in the mind is not the concrete identity of a mountain, but only its quiddity and mental form. As a general rule, Ījī concludes, mental forms (ṣuwar dhihniyya) are necessarily opposed to the external world (khārijiyya), and the impossibility of a judgment in one does not entail its impossibility in the other.

From the foregoing, it becomes clear that Ījī accepts mental existence understood as a mental form or quiddity in the same manner as that of philosophers. It is also not insignificant that while stating their arguments, Ījī uses the word “we” to

\[\text{\begin{align*}
140 & \text{Ibid., 179.} \\
141 & \text{Ibid., 181.} \\
142 & \text{Ibid., 181.}
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present and defend that view, such as, “we say” and, “if you object, we reply,” which is other than his usual practice of referring to the philosophers’ position as, “according to them.” On this issue, he then evidently departs, as he tells us, from the majority of theologians as well as Rāzī, and affirms the position of the philosophers.

In Jurjānī’s commentary, we find an extension of Ījī’s condensed arguments, but they are embedded in his own framework. Before he begins the actual commentary on the chapter, he lays out the issue at stake:

Text 3. “There is no doubt that fire, for example, has an existence by means of which its judgments are made manifest, and its effects, like luminosity, burning and others, arise. This existence is called a concretely particularized (ʿayniyyan), extra-mental (khārijiyyan) and a foundational existence (aṣīlan). It is among those matters where there is no disagreement. The dispute however lies in whether or not there is an existence for the fire other than this existence by which these judgments and effects for the fire follow. This second existence is called an existence that is mental (dhihniyyan), shadowy (ẓilliyan) and non-foundational (ghayr aṣīl).”

The passage resonates an earlier theme that the concept of mental existence is not directly about ‘existence in the mind’ understood as a kind of place wherein something resides. Instead it concerns a particular mode of existence which is unlike another, more familiar mode of existence on which judgments and effects, such as luminosity or burning, depend. Stated in this manner, mental existence, for Jurjānī, is primarily intended to distinguish between the different modes of existence of quiddities.

143 Ibid., 169.
in terms of how they exist, and only derivatively may lead to the question of what exists and where they exist as well.

The relation between essence and existence forms an important context in which Jurjānī then situates his discussion of mental existence. This deserves some background. Since Ibn Sīnā while the essence-existence distinction dominated the tradition at large, a key question was whether existence is superadded to quiddity or identical to it both in the case of contingent and necessary beings. In general, Ījī identified three positions in his Mawāqif: (1) quiddity is identical to existence, both in necessary and contingent things, which is the position attributed to Ashʿarī and earlier theologians, (2) quiddity is identical to existence in necessary beings, and existence is superadded to quiddity in contingent things, which is the position attributed to philosophers, (3) existence is superadded to quiddity, both in the necessary and contingent things, which is the position that seems to be attributed to the later verifying scholars, and is also one favored by Ījī and Jurjānī.


It is within this conceptual framework that assumes existence as superadded to quiddity that Jurjānī explicates the proper meaning of mental existence by identifying it as a quiddity in a particular mode.

Text 4. “And, upon accepting this [second] existence, the mental existence becomes the same as the quiddity, which is attributed with the extra-mental existence. The difference between both [existents] is with respect to existence, not with respect to quiddity. This is the reason why some scholars have said: things in the external reality are concrete particulars, and in the mind are forms. Thus, one can dissolve the contention in this way without any dispute. The statements that establish and negate [mental existence] conform to this, as will become clear to you. Hence there is no difficulty in what is said that this discussion is very hard.”

According to Jurjānī, the key difference between something existing “in the external reality” and “in the mind” is not due to there being two different quiddities. Rather, it is due to the fact that one and the selfsame quiddity can assume two different modes of existence. For example, with regard to a concretely existing fire, we may say that the quiddity of fire exists in this case by the external mode of existence, or simply that it has external existence, by which we recognize a mode on which the customary effects and judgments depend. When we represent that fire in our minds, the selfsame quiddity of fire is said to exist by the mental mode of existence, or simply to have mental existence, by which we identify a mode unlike the first. Different authors may

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146 Ibid., 170.
147 See Toshihiko Izutsu, *The Fundamental Structure of Sabzawari’s Metaphysics* (Tokyo: Keio University, 1971), 35. The above passage reinforces the point made earlier that the primary sense in which Jurjānī understands external and mental existence is as referring to two distinct modes of existence, as opposed to two distinct realms (or places, repositories, etc.).
have terminological differences in specifying this fundamental distinction by employing various analytical categories like mental existence, quiddity in general, form, or “existence in the mind,” on one hand, and external existence, concretely particular, or “existence in the external world,” on the other. Yet, on investigation, Jurjânî says, there remains no substantial difference in the various articulations.

Once this fundamental distinction is established, Jurjânî seems less interested in the question concerning the ontological place where the forms or quiddities reside. This can clearly be observed in his response to Râzî’s objection seen earlier. Having established mental existence, the further question of whether the mental forms occur in the rational soul or somewhere else is irrelevant.

**Text 5.** “The upshot of this discussion is that when these mentally posited (*iʿtibārī*) matters cannot possibly exist in the external world, it is not possible that they possess a real existence – neither an existence that stands on its own, nor an existence that stands due to other than itself. Hence it is necessary that it has a shadowy (*ẓillī*) existence in the perceptual faculties, irrespective whether in the rational soul or in other than it. This is the intended goal.”¹⁴⁹

Jurjânî continues to repeat several of the themes already seen earlier. For example, he clarifies that an impossible entity is not established in the external reality nor directly in the mind. Instead, it is established for the subject in *nafs al-amr*. This

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¹⁴⁸ I have translated *ẓillī* as shadowy; what is meant is a kind of form that mirrors what is in the phenomenal world.

¹⁴⁹ Ibid., 160.
establishment entails that the subject exists in *nafs al-amr*. Thus, insofar as the subject is not present in the external reality, it follows that it is present in the mind.

Concerning the argument for mental existence from real, universal propositions, Jurjānī again refers to *nafs al-amr* to provide a precise articulation of a ḥaqīqī judgment. A ḥaqīqī proposition is a particular universal proposition where the judgment applies to all its individuals in *nafs al-amr* in accordance with the meaning, and irrespective of whether the individuals have external existence, either assumed or established, or not.\(^\text{150}\) He distinguishes it from khārijī propositions where the judgment applies to the individuals in the external reality only.\(^\text{151}\) If there is no mental existence, it will falsify propositions that are true, necessary and universal, such as the statement, “the sum of the angles of a triangle is equal to two right angles.”\(^\text{152}\) The judgment applies to concretely existing triangles, but also to other individuals for which the meaning of

\(^\text{150}\) Ibid., 179.
\(^\text{151}\) Ibid., 180.
\(^\text{152}\) Ibid., 180-1. Jurjānī writes: “If there is no mental existence, it will falsify propositions that are real (ḥaqīqa), affirmative (mūjiba) and universal (kulliyya). For example: Sum of the angles of every triangle equals to two right-angles. Since the judgment in this proposition is not limited to individuals in the external world (al-afrād al-khārijiyya). Instead they also include those individuals, other than them, where the subject (mawḍūʿ) is true for them in *nafs al-amr*. Hence if for these individuals [other than the ones in the external world] there is no mental existence, the positive judgment (ḥukm ījābī) will not be true for them.” Note that Jurjānī is saying that that triangles, whether existing concretely or as mental entities, both adhere to the proposition that the “sum of the angles of a triangle is equal to two right angles.” In other words, Jurjānī understands that the proposition is not only true of mental triangles, but also true of concrete ones. This passage provides an instance which seems to suggest that mathematical figures, such as triangles and circles (technically called miqdār, or measure), can have external existence. In the next chapter, I discuss other passages where he directly and specifically addresses this topic and carefully raises objections against the external existence of such mathematical figures. As such, this topic can very well be seen as another case where Jurjānī can generally utilize the traditional, philosophical position in general discussions (i.e., accepting external existence of mathematical figures), but departs from that position based on his more considered and careful examination.
triangle holds in *nafs al-amr*. Not having concrete existence, if they are also denied mental existence, the positive judgment will not be true for them.

Concerning the argument of those who deny mental existence since it will lead to qualifying the mind with contrary qualities, Jurjānī reaffirms his meaning of mental existence. Despite sharing the same quiddity, what is acquired in the mind is opposed to the entity existing externally because the former is a mental form, a universal, and a quiddity which exists due to shadowy existence, while the latter is an identity, a particular, and individual which exists due to real existence. Being an identity, it possesses something extra to the general quiddity. Given this difference, both are different in their realities and judgments. The joining of contraries leads to a contradiction in the judgments of concrete individuals, but not of forms and quiddities conceptualized as universals.\(^{153}\)

### 3.3.5 Conclusion

Jurjānī affirms mental existence in several of his works, drawing on similar themes and arguments of later authors in the period after Rāzī. By clarifying the notion of *nafs al-amr* and the distinction between *khārijī* and *ḥaqīqī* propositions, he refines the concepts and reasoning involved in the two standard arguments for mental existence, that is, from impossibilities and from universal true propositions. Moreover, by relating mental existence with a host of similar categories – like shadowy existence, 

\(^{153}\) Ibid., 181-84.
non-real existence, form, quiddity in general, mentally-posited entity, universal – and then juxtaposing it with external existence, he again seeks to clarify the related concepts present in conceptual schemes dominant in the later period. By doing so, he is also able to respond to both hypothetical and real objections against mental existence. Importantly, he tends to view the dispute over mental existence as terminological rather than substantive, and, going beyond simply establishing mental existence, he considers and clarifies its proper interpretation, by which, he thinks, one can actually dissolve the contention between the opposing arguments. The fundamental distinction, he terms, is rather intuitively between a mode of existence from which effects and judgments proceed, and another from which they do not.

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3.4 Jurjānī’s Understanding of Nafs al-Amr

3.4.1 Introduction

Having seen in the previous section how Jurjānī understands external and mental existence, we can now turn to consider his views on the concept of nafs al-amr and the two related concepts of the external world and the mind.

Nafs al-amr, translated literally as the “thing in itself,” is a term that is found in both Muslim philosophical and theological writings during the post-classical period.

154 It is particularly difficult to translate nafs al-amr in a manner that captures all its different connotations. As we shall see in this section, Jurjānī defines the term at various places to highlight its epistemological, ontological and theological dimensions. For Jurjānī, in parallel to his understanding of
While the whole of Jurjānī’s discussion concerning *nafs al-amr* is consistent with its ordinary meaning as the thing itself, but it is the unprecedented extent to which he sets out to explicate the concept more substantively by considering a host of key issues that relate to its proper interpretation, usage, and role that makes his contribution uniquely novel and particularly influential for subsequent discussions.

There are at least three main works where Jurjānī himself explains the concept of *nafs al-amr* in more than sufficient depth to allow us to understand its meaning and significance, particularly with regard to the debates regarding ontology of mathematical objects. These three works are: (1) a short, stand-alone treatise on *nafs al-amr*, entitled, *Risāla fī taḥqīq nafs al-amr* (Treatise on the Verification of *Nafs al-amr*), (2) Ḥāshiya ʿalā *Sharḥ al-Tajrīd* (Gloss on Iṣfahānī’s commentary on Tūsī’s *Tajrīd al-ʿiqād*), and (3) Ḥāshiya ʿalā *Sharḥ Hikmat al-ʿayn* (Gloss on Ibn Mubārakhshāh al-Bukhārī’s commentary on Kātibī’s *Hikmat al-ʿayn*). The full treatise and the relevant passages from the two

external and mental existence, *nafs al-amr* can be construed primarily and foremost as a thing viewed in a particular mode of being. This mode refers to a de-facto, objective, primary mode of being, i.e., a mode naturally given, before the light of subjective analysis is shed upon it. For this reason, it comes prior to the external and mental modes of existence. It is in this sense that one can render *nafs al-amr* as the “thing in itself.” In addition, *nafs al-amr* also has an ontological dimension for Jurjānī in the sense of constituting a realm where things, being in their objective, primary mode, are realized (or established). In this sense, *nafs al-amr* can derivatively be understood as an objective realm or repository comprising the forms of all truths (i.e., true things, entities, judgments, events, etc.). I am sympathetic to the suggestion that seeks to capture this ontological dimension of the word, as a kind of repository of truth, by rendering *nafs al-amr* as “the fact of the matter” (See İhsān Fazlıoğlu, “Between Reality and Mentality”). Finally, *nafs al-amr*, for Jurjānī, also has a theological aspect in the sense that it denotes an expression of God’s essential knowledge. Given these various connotations of the word, and the evident difficulty in capturing them adequately in English by some phrase, I have generally tried to confine myself to using the Arabic word itself; however, where I have felt a need for further explanation, I have exercised my judgment and emphasized which of these three broad dimensions is most relevant to the immediate discussion. That said, it is important that one should always keep in mind that these three distinct dimensions form a complete unity in Jurjānī’s fuller understanding of the word.
commentaries have been translated and appended at the end of this study, and will
mainly be relied upon in the following sections.155

3.4.2 Meaning of the External World (khārij) and Mind (dhihn)

Jurjānī begins by first clarifying the meaning of two related terms, namely,
external world and mind, and how they relate to each other. It is the distinction
between external and mental existence that he extends into the distinction between the
external world and the mind. He writes:

**Text 1.** “You already know that existence is of two types: foundational existence (wujūd aṣīl) upon which effects are based and from which judgments proceed; and shadowy existence (wujūd ẓillī) which is not like this. Shadowy existence can only be conceived in the perceptual faculties, and for this reason is known as mental existence (wujūd dhihnī). Foundational (aṣīl) existence does not occur except outside the perceptual faculties. Thus, the external (khārij) stands opposite to the mind (dhihn).”156

One may note a few points in the above passage. First, Jurjānī continues to parse
the distinction between the actual and mental existence primarily in terms of two
uncontroversial modes of existence by which one can represent quiddities, one being
the bearer of customary effects and judgments while the other being not. However,
there is another distinction that he highlights here. Foundational existence occurs only
outside the perceptual faculties, and is thus absolutely opposed to the shadowy (or
mental) existence which can only be conceived inside the perceptual faculties.

155 See Appendix 1.
156 Jurjānī, Ḥāshiya ʿalā Sharḥ Tajrīd, 224.
Moreover, one can infer that Jurjānī interprets external reality with that realm that lies outside the perceptual faculties and where foundational existence takes place, and the mind with that realm that lies inside the perceptual faculties and where shadowy existence is conceived. This leads him to claim that external reality is opposed to the mind.

As a minor point bearing on terminology, Jurjānī introduces the two kinds of existence by terming them as foundational and shadowy existence, as opposed to extra-mental and mental. This presentation can also be observed at other places and may tell us something about his attempt to employ uncontroversial terms and dissolve the substance of the issue. In any case, he does seem to provide here a reasoning which can warrant calling shadowy existence as mental existence. Since shadowy existence only occurs in the perceptual faculties, and insofar as these faculties denote the mental faculties of the soul, one can proceed to term this existence as mental.

3.4.3 Meaning of Nafs al-Amr

Having explained the relation between external reality and the mind, Jurjānī turns to nafs al-amr. Concerning the meaning of nafs al-amr, he writes:

Text 2. “Regarding nafs al-amr, its meaning is the very thing (nafs al-shay) in respect of its own definition (fī ḥadd dhātihi); what is intended by al-amr is the thing itself. Thus when we say: a thing exists in nafs al-amr, its meaning is that it exists in respect of its own definition. The meaning of its existence (kawn) in respect of its own definition is that its existence is such not due to the posit of one positing, nor to the supposition of one supposing, but rather
if one were to disregard all considerations and suppositions, it will be existing.”

A similar presentation of nafs al-amr is found in his Ḥāshiya ʿalā Lawāmiʿ al-Asrār.

**Text 3.** “As for the meaning of nafs al-amr, it is the matter (amr) itself, that is, the thing itself (shay’)—matter refers to the thing. The meaning of [a proposition] that the being of a thing exists in nafs al-amr is that it exists in respect of its own definition (fī ḥadd dhātihi). This means that its existence (wujūd), realization (taḥaqquq), and establishment (thubūt) are not due to someone putting forth a supposition or to someone making a mental construct. For example, the necessary concomitance between sunrise and the presence of daylight is established (mutahāqqiq) in its essential definition, irrespective whether there exists someone who puts forth a supposition or not, and also irrespective whether one puts it forth as a supposition or not.”

We can consider a few key points concerning nafs al-amr in the above passages.

Defining the two Arabic words that form nafs al-amr, Jurjānī states that the word nafs means identity or sameness, and al-amr means the thing. The expression “nafs al-amr,” therefore, refers to the identity of a thing, or the thing itself. What is understood by the “thing itself” is the thing which is known in respect of its own definition. He clarifies what is intended here by the thing being known in respect of its own definition, is that which is in contrast to a thing established due to one’s supposing or considering it. It refers, therefore, to a thing viewed in its primary, de-facto mode of being, i.e., as

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157 Ibid., 224-5.
158 Jurjānī, Ḥāshiya ʿalā Sharḥ al-Maṭāliʿ, 124.
naturally given, before the light of subjective analysis is shed upon it.\textsuperscript{159} In other words, *nafs al-amr* is the “purely objective, completely detached from any influence of the subject.”\textsuperscript{160}

When an object is said to ‘exist’ in *nafs al-amr*, it is important not to interpret this existence as mental or extra-mental existence, since both existences proceed only once the object is viewed analytically and when the mind becomes cognizant of the object. However, one can interpret it to mean absolute existence, as a certain mode which though can only be particularly individuated as either mental or extra-mental existence, yet in itself is more general than both. Offering clarification on this general mode of being, he states that an object that exists in *nafs al-amr* must be understood as the object that exists due to the definition of that object itself, or, as he puts it, *fī ḥadd dhātihi*, i.e., in respect of the object’s own definition. For example, the definition of sunrise confers a necessary judgment regarding the presence of daylight. The judgment occurs due to the very meaning of sunrise, irrespective of its actual or mental existence. Likewise, the definition of four confers a necessary qualification of its evenness.


According to Jurjānī, then, *nafs al-amr* is the factual reality of things – things as they are in themselves.\(^\text{161}\)

In a parallel fashion, when a proposition is said to be true in *nafs al-amr*, it means that the judgment in the proposition applies to the subject-thing for the proposition in *nafs al-amr*, irrespective of this subject-thing also has external existence or not. However, this of course implies that the subject-thing for the proposition is present in *nafs al-amr*, because what is not established in *nafs al-amr* cannot be qualified with anything.\(^\text{162}\)

### 3.4.4 Meaning of an Object Established in *Nafs al-Amr*

Another context through which Jurjānī illuminates the concept of *nafs al-amr* and external world concerns the question where a particular thing can be realized. In his *Risāla fī taḥqīq nafs al-amr*, the issue is precisely about distinguishing between different things depending on whether they are realized inside the perceptual faculties of the mind only or have a certain realization outside the perceptual faculties even while they are ultimately apprehended by the mind. Below is an analysis of his exposition.

In an important opening statement, he writes:

\(^{161}\) An object exists in the *nafs al-amr* means that the object exists due through the definition of that object itself. That is to say that the object is established not due to any supposition or consideration of a subject, but instead disregarding all considerations and suppositions, it is still said to have existence.

\(^{162}\) A proposition is true in *nafs al-amr* means two things: first, that the subject for the proposition, or the individual thing, is present in *nafs al-amr*, irrespective of whether this subject-thing also has external existence or not, and, second, that the judgment in the proposition applies to the subject-thing in *nafs al-amr*. 

185
Text 4. “Know that the establishment (tahaqquq) of things is either an intellectual supposition (farḍ ‘aqli), which is only present in the perceptual faculties, or a real (ḥaqiqi) [supposition], which is present outside the perceptual faculties, irrespective whether the intellectual supposition exists or does not exist. Regarding it, it is said that it is present in nafs al-amr.”

In principle, our only cognitive access to things – even to real, existing, and concrete things – proceeds by way of what we think about them. Accordingly, the realization of a thing in its most general form, Jurjānī says, occurs only by way of supposition (fard), assumption, or the like. Our prospect of dealing with things is by producing a notion about it.

The supposed thing in turn can be of one of two kinds. It can have a realization only in the perceptual faculties of the subject conceiving (or perceiving) it, in which case it is known, he says, as an intellectual supposition (farḍ ‘aqli). By perceptual faculties, what is meant here are the standard Avicennian faculties of the five internal senses. They are identified as: (1) the common sense, (2) the retentive imagination, (3) the compositive imagination, which in humans is transferred into the cogitative faculty when utilized by the intellect, (4) the estimative faculty, and finally (5) memory. Physiologically, all five internal senses are described as being part of the brain. Accordingly, the realized thing in this case occurs simply as an image present only in the mind (or mental soul), for which there is no corresponding object whatsoever.

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Moreover, we can recall that truth for Jurjānī consists in a relation of conformity between a thing and either the external world or nafs al-amr. The fact that such an image does not conform to anything, neither in the external world nor in nafs al-amr, such an image is not only fictional but also false. In fact, if one asks what may be an example of such an image, the answer is precisely all images which are falsehoods. The belief that number five is even, to use an example he cites in a different context, is a mental supposition of this sort. Finally, though such an image which is fictional and false cannot exist, yet it cannot entirely be denied being. For the image also comes to be (from a state of “possible of existence in itself” to a state of “necessary of existence through another”), and, therefore, has a certain being. According to Jurjānī, it simply has a mental being, but one which is false.

The second of the two kinds of realization refers to a thing which is supposed, and which therefore is in the perceptual faculties, but which also has an establishment outside the perceptual faculties. In other words, the mental image corresponds to a certain object which is outside the mind of the one supposing that image. Such a thing, he says, is known as a real or true (ḥaqīqī) supposition. But what is the nature of this extra-mental object to which the image conforms? Jurjānī is not immediately concerned about this question, because the distinction he wishes to highlight is simply that here (unlike the earlier case) the mental image conforms to some object outside the perceptual faculties, irrespective of what that object is.

Nevertheless he does proceed to shed light on the issue, and divides such objects, present outside the perceptual faculties, into two broad types: those which
exist and those which do not exist. Existence is taken here in its uncontroversial
meaning to refer to extra-mental, concrete existence in the world. This distinction
should alert us to the fact that for Jurjānī, objects present outside the perceptual
faculties do not simply mean extra-mental objects, but also include mental objects. In
other words, real objects comprise both extra-mental and mental objects.

The first type of real objects, i.e., extra-mental, concrete objects refers to the
usual things we encounter in the world such as the individuals this horse and that man.
The second type is more interesting since, paradoxical it may seem, it refers to things
which, despite having no external existence in the world, and so are mental, do have a
realization outside the mind, and thereby are real (and true). In other words, the thing
in this case refers to a mental being which is true and real. A common example Jurjānī
gives of this kind is the belief that number four is even. When conceived in the mind, the
number four has no external existence, and hence is purely mental, but even before it
was conceived and acquired a being in the mind, it was already qualified with evenness.
Based on the principle that one cannot qualify something unless that thing itself is first
realized, it follows that the number four has a realization in a realm outside the mind
where it is qualified with evenness.

Our example leads us to ask what is this realm which is outside the mind and
where this realization of thing takes place. Jurjānī states that nafs al-amr is precisely
that realm where this second kind of realization takes place generally, irrespective of
whether the supposed thing exists or does not. That is to say a supposed thing which
simply has a realization outside the perceptual faculties is said to be present in nafs al-
amr. It is worth noting that for a thing to be present in nafs al-amr it does not require any ontological commitment to its existence or non-existence. Thus, properly speaking, both types of objects given in the above examples, that is of an individual like this horse, which has external existence in the world, and of a true mental being like the number four which is even (as opposed to a false mental being such as the number four which is false), which has no external existence, are said to be present in nafs al-amr.

Accordingly, nafs al-amr refers to a realm where things that are true and real are primarily and absolutely realized. Moreover, one can infer then that truth, properly speaking, comprises in a supposed thing which conforms to an object in this realm of nafs al-amr. Hence it can be sharply distinguished from falsehood on account that the latter simply refers to a mental being realized in the perceptual faculties only having no corresponding object.

Till now Jurjānī has stated three main points. First, the reality of a supposed thing consists in establishing that thing outside the perceptual faculties. Second, he identifies nafs al-amr as the realm in which things that are real are established. Third, the real things, established as they are absolutely in nafs al-amr, can then more particularly be divided into two broad classes: the individuals such as this horse and true mental beings such as the number four which is even.

He then writes:
**Text 5.** “The real will be either by means of reflection on itself (انفسیح), or by means of the relationship to what is external to itself, which is named the external world (الخارج).”

Jurjānī now sheds light on precisely how the reality of the two kinds of real things can be established, that is to say how one establishes that these things are also present outside the perceptual faculties. Expectedly, he offers two ways to cater to the distinct nature of each real being. The reality of a supposed thing, he states, can be realized either, “by means of reflection on itself,” or, “by means of the relation to what is external to itself, which is called the external world (الخارج).” The first way, for Jurjānī, is meant to highlight the cognitive process by which one recognizes the real establishment of a true mental being (such as the number four is even). To use an example he explicates elsewhere, when we intend to qualify the number four with evenness, our intellect first conceives the number four in the mind, and thereby accords it mental existence, and then qualifies it with evenness. Yet we know that even before our mind had actually conceived and then qualified the number four, it was already qualified with evenness in itself, and this we know precisely by reflecting on the number four in itself. From our knowledge attained through reflection that four is even in itself, and of the principle that one can qualify something only when that thing has a realization, we can finally conclude that four has a realization in itself (outside the mind), or, as Jurjānī puts it, in nafs al-amr.

\[164\] Ibid.
Lurking beneath the account is a key point. Subjects are qualified with certain predicates in nafs al-amr, for example, the number four is qualified with evenness in nafs al-amr. Moreover, one’s intellect has the ability to apprehend that a particular subject is qualified by particular predicates in nafs al-amr, by simply reflecting on the mental form of the subject itself. Finally, by predicating a mental subject with predicates that are true of it in nafs al-amr, the intellect thereby can precisely realize a true mental being. As we shall see in next chapter, this point will bear relevance in how Jurjānī understands the epistemological value of knowledge attained through mathematical sciences such as geometry and astronomy.

The second way by which the reality of a supposed thing can be established is by relating it to an external object, i.e., an object that is external to the supposed thing. The fact that this object is external to the supposed thing, and therefore cannot be mental, it follows that it must refer to an extra-mental, concrete object in the world. External object simply means an extra-mental object. It is this extra-mental object, or more generally the realm which comprises of such extra-mental objects, which Jurjānī identifies with the technical term, al- khārij, meaning external world. Thus the key distinction between the two ways can be stated as follows. Unlike the first way where the intellect simply reflects on a supposed thing in the mind, and thus the real object refers to a true, mental object, in the second way, however, the intellect must establish a relation of conformity between a supposed thing and some extra-mental object. By relating a supposed thing to its corresponding extra-mental object, one establishes that the thing is present outside the perceptual faculties, i.e., that it is real. Moreover, that it
is present outside the perceptual faculties means that the object is present in *nafs al-amr*. Simultaneously, being an extra-mental object means that it also has existence and is present in the external world.

Having looked at the way Jurjānī understands how real objects are realized (or established), it is worth noting the stark difference between his account and that of Ibn Sīnā, or of the Avicennian purists closer to his time, say, Ṭūsī. According to Ibn Sīnā, explaining the realization of an object involved answering how our material intellect emerges from a state of potentially knowing certain things to a state of actually knowing those things.\(^{165}\) This emergence required a cause which he identified with the Active Intellect. As the source of all forms of things, the Active Intellect provides the intellectualizing forms that make the potentially intelligible objects in the intellect actually intelligible.\(^{166}\) When the actually intelligible impresses itself onto the intellect there is realization (or intellectual perception).\(^{167}\) However, note that Jurjānī in his account makes no reference to the notion of actually and potentially intelligible objects, or to the role of the Active Intellect, or to the intellectualizing forms, or to the emanation of the forms to the material intellect. Instead, employing the concept of *nafs al-amr* and of the external world, he attempts to develop an account that relies more on the intellect’s ability to reflect on the thing itself and to relate mental entities with


\(^{166}\) Ibid.

\(^{167}\) Ibid., 136.
extra-mental, concrete entities. His turning away from the Active Intellect account to one which relies on the “intrinsic nature of human cognitive faculties” – an account which is shored by his elucidation of concepts like *nafs al-amr*, the external world and mental existence – marks a particularly defining moment in the larger transformations in the conception of true knowledge occurring especially among the mathematically-inclined, Sunnī *mutakallimūn* in the post-classical period.¹⁶⁸

### 3.4.5 Relationship Between *Nafs al-Amr*, External World and Mind

What is the relationship between *nafs al-amr*, external world and the mind? Jurjānī addresses this issue in the remaining portion of his treatise as well as in his two commentarial works, *Ḥāshiya ʿalā Sharḥ al-Tajrīd* and *Ḥāshiya ʿalā Sharḥ Maṭāliʿ al-Anwār*, displaying a general consistency in his views.

As mentioned, Jurjānī considers *nafs al-amr* as a realm which is categorically outside the perceptual faculties. Moreover, he views it as a realm of things in themselves, and which for this reason is uncommitted to the ontological issue of existence of things or not. Thus *nafs al-amr* encompasses both the external world and the mind.

Jurjānī next proceeds to explain, specifically, the mutual relationship between *nafs al-amr*, external world, and the realm of mental existence. *Nafs al-amr* is absolutely more general than the external world, because everything that is in the external world,

by definition, must also be in *nafs al-amr*.\(^{169}\) Elsewhere, he utilizes the example of judgments to explain the same point.\(^{170}\) Every judgment which is true in the external reality is also true in *nafs al-amr*. For example, when a body is compound in the external reality, it will also be a compound in *nafs al-amr*.\(^{171}\)

However, the converse does not hold true as a rule because it is possible that a judgment that is true in *nafs al-amr* may not be true in the external reality.\(^{172}\) The judgment given by the proposition “impossible is a non-existent in the external reality” is true in *nafs al-amr*; however the judgment is not true in the external reality since the “impossible” does not exist in the external reality, and whatever does not exist cannot be attributed with anything in the external reality. Similarly, blackness that does not exist externally is a color in itself (*fī nafsihī*). However, this blackness will not be a color in the external world because it does not exist externally, and whatever does not exist externally cannot be attributed with anything in the external world.\(^{173}\) Simply put, then,


\(^{171}\) Ibid., 103.

\(^{172}\) Ibid.

\(^{173}\) Ibid.
while every externally existing object is present in *nafs al-amr*, not everything present in *nafs al-amr* is an externally existing object.\(^{174}\)

As a contemporary author indicates, the relationship between *nafs al-amr* and the realm of mental existence, however, does not follow suit, for *nafs al-amr* can only be said to be more general than the realm of mental existence from a certain perspective (‘āmm min wajh).\(^{175}\)

**Text 6.** “It is more general than the mind (dhihn) from one aspect due to the possibility of believing falsehood, e.g., the number five is even, since it exists in the mind but does not exist in *nafs al-amr*. Examples similar to this are called mental, assumed [propositions] (dhihn farḍ). The evenness of number four exists in both [i.e., in the mind and in *nafs al-amr*]. Examples similar to this are called mental, true [propositions] (dhihniyyan haqīqiyyan).”\(^{176}\)

Accordingly, that which occurs in the mind may be present in *nafs al-amr*, and thereby be true, e.g., the number four is even. On the other hand, that which occurs in the mind may not be present in *nafs al-amr*, e.g., the number five is even. Such a proposition which occurs only in the mind but has no corresponding occurrence in *nafs al-amr* will be false. The possibility that the mind can believe such a falsehood is the reason why truth of a mental proposition does not simply comprise of a relation with


\(^{175}\) See ibid., 66. Though the author makes this evaluation in the case of Sabzawārī, but it applies equally to Jurjānī as well, who not only preceeded Sabzawārī, but may have also influenced, mediately, the latter’s views.

\(^{176}\) Jurjānī, *Ḥāshiya Lawāmi’ al-Asrār*, 125.
what is acquired in the mind. Instead, the truth of belief depends on its corresponding occurrence in nafs al-amr.\textsuperscript{177}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{figure3_1.png}
\caption{The Relationship Between Nafs al-amr and the External World\textsuperscript{178}}
\end{figure}

\textsuperscript{177} Generally and loosely speaking, however, nafs al-amr is employed in a limited sense to refer to the realm where the object in the second case is realized (i.e., an object having no external existence but which is realized outside the perceptual faculties such as the number four). Meanwhile, the concrete individuals like this horse are simply, even if slightly inaccurately, said to be realized in the world. The same applies to the definition of truth. While properly speaking it comprises of a relation with nafs al-amr, Jurjānī elsewhere explains it as a relation between a judgment and either external world or nafs al-amr.

\textsuperscript{178} Both Figure 3.1 and 3.2 are adaptations of those present in Ali-Reza Bhojani, Moral Rationalism and Shari‘a, 66.
3.4.6 Importance of Distinguishing Between the Three Realms

According to Jurjānī, it is vital always to distinguish between the distinct realms of nafs al-amr, the external world, and the mind. Nafs al-amr are the things themselves, viewed in their primary and de-facto mode of being, i.e., as naturally given, before the light of analysis is shed upon them. They are realized outside the perceptual faculties, independent of any ontological commitment to their existence or not. They constitute what one may call objective reality (since they involve no subjective consciousness).

Moreover, their realization does not occur on account that a person supposes or mentally posits them, but that they stand independent of any subject and his cognizing.

Instead their realization occurs in respect of their own definition, which is to say how the concepts forming the definition of the thing are logically related to each other. For example, there is a necessary concomitance between sunrise and the presence of daylight, which is realized simply through the essential definition of sunrise, inasmuch as the “presence of daylight” is logically contained in the concept of “sunrise.”

When the mind takes cognizance of things and views them analytically, things can be distinguished into two kinds depending on whether they have (external) existence or not. External world are the things realized outside the perceptual faculties which possess foundational (ašīl) existence. They constitute external reality (i.e., a realm of extra-mental, concrete objects). Things that do not have foundational existence are present in the mind, and, elsewhere he says, can be said to have shadowy or mental existence. If they also have a realization outside the perceptual faculties (i.e., the thing is realized in itself), they are present in nafs al-amr, and thus are true mental objects; otherwise, they are simply fictional mental entities.

According to Jurjānī, the reason why it is crucial to distinguish between these realms is because different kinds of judgments apply to different realms. Depending on the kind of judgment, the judgment may apply to the external world, or to the mind, or to even nafs al-amr. One must therefore know the proper nature of these realms and

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180 I.e., the logical structure of a judgment (proposition). This has to do with how the concepts forming the judgment are logically related to each other.

181 Jurjānī will use the term “judgment” to refer to a specific activity of mind, the combination of subject and predicate to form a determinate thought. The term proposition is used interchangeably, for the most part. In making a judgment, one asserts the truth of a proposition.
the kinds of judgments that attach to each since otherwise many mistakes arise when a judgment applying to one realm is confused with a judgment applying to another.

One particular source of confusion, Jurjānī highlights, is when judgments of *nafs al-amr* are mistaken for external reality or the mind.

Text 7. “The conditions of the things in terms of dependency, independency, necessity, entailment, essential accidents, essences, and mental constructions are known by their establishment in and of themselves, and many mistakes arise because the judgment of *nafs al-amr* is confused with the judgment of the external world or the mind.”

The passage enumerates those conditions of things which attach to the things in *nafs al-amr*. That is to say such conditions qualify their subject-thing in virtue of the subject’s absolute or general existence, not due to the specific nature of either mental or extra-mental existence. Whenever the subject is established in itself, irrespective whether it actually exists or not, such qualifications take place. Jurjānī offers three particular cases in different places to explain this point and to remove potential confusion.

In the first case, he clarifies the situation when one conflates judgments in a *ḥaqīqī* (real) proposition with those in a *khārijī* (external) proposition. *Khārijī* refers to propositions where the judgment in the proposition applies to individuals in the external world. It is distinct from *ḥaqīqī* where the judgment in the proposition applies to all the

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individuals of its class, irrespective of whether they exist in the external world or not.

Unlike *khārijī* judgments, which qualify their subject in the external world, a *ḥaqīqī* judgment qualifies its subject in *nafs al-amr*. “The number four is even” is a *ḥaqīqī* judgment inasmuch as “evenness” qualifies the concept of the number four in itself, that is to say, it applies to all the individuals present in the class of the number four, whether they actually exist or not. Likewise, to cite another of his examples, “The sum of the angles of a triangle equal to the sum of two right angles” is a *ḥaqīqī* judgment since the judgment applies to all the individuals present in the class of triangles, irrespective of their existence. “Zayd is a man” is however a *khārijī* proposition, inasmuch as the concept of man qualifies an individual only present in the external world, i.e., Zayd.

In the second case, he sheds light on the proper interpretation of a class of predicates that are known as necessary concomitants of a quiddity. Jurjānī first clarifies a subtle point about the correct meaning of a necessary concomitant. A necessary concomitant qualifies its quiddity in terms of its general or absolute existence, for it would be incorrect to maintain that a quiddity which has no establishment whatsoever (neither absolute, nor the two particulars) is qualified by something. The proper way to put it, he says, is to say that whenever the quiddity is established, it is qualified with its necessary concomitants. However, he continues, one should not

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184 Jurjānī, Ḥāshiya ‘alā Sharḥ al-Maṭāli‘, 159.
construe this to mean that the necessary concomitants are entailed due to either mental or extra-mental existence. This is because, he says, neither of the two kinds of existence have the capacity to provide such an entailment. Instead, it is the quiddity itself which entails its necessary concomitants by way of precisely its absolute existence.¹⁸⁵ In short, a quiddity is qualified by its necessary concomitants through its establishment in nafs al-amr.

A third source of confusion Jurjānī addresses presents itself in the mistaken view (according to Jurjānī) that for a predicate to qualify its subject in the external world, the predicate itself should have existence. The reasoning incorrectly assumes that a non-existing predicate cannot qualify a subject in the external world. According to Jurjānī, qualifying a subject with a property in the external world does not entail that the property itself is present in the external world. His classic example is that of Zayd, who is blind in the external world. Here one can qualify Zayd with blindness in the external world, but it does not entail that blindness itself is an existent; rather it is simply a mental entity. Another variant to the same view is to think, again incorrectly, that for a predicate to qualify its subject in nafs al-amr, the predicate itself must be present in nafs al-amr. Jurjānī rejects this reasoning by providing another classic counterexample. Though the number four is qualified with evenness in nafs al-amr, yet “evenness” itself

¹⁸⁵ Ibid.
is not present in *nafs al-amr*. Simply put, it is possible for a non-existing predicate to qualify an object in the external world or *nafs al-amr*.

The last case leads him towards distinguishing between two broad kinds of predicates: those that have external existence, and those that do not, which are simply mentally-posited entities (*amr iʿtibārī*). Existing predicates qualify their subject in the external world, whereas mentally-posited entities can only qualify their subject in *nafs al-amr*. “Snow is white” is a judgment where the quality indicated by “whiteness” qualifies snow in the external reality inasmuch as Jurjānī believes “whiteness” is an existing predicate. “The number four is even” is a judgment where “evenness” qualifies the number four in *nafs al-amr*, inasmuch as he thinks “evenness” is a mentally-posited concept (*amr iʿtibārī*), having no corresponding existence in the world.

Having explained the advantage derived by properly being able to distinguish among the realms of *nafs al-amr*, the external world, and the mind, insofar as it allows one to resolve the confusion that may arise from conflating judgments of one realm with another, he proceeds to highlight yet another benefit – which also forms the concluding point of his treatise. Continuing with the theme that the conditions of things

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186 See Ḥāshiya Lawāmiʿ al-Asrār fī Sharh Matāliʿ al-Anwār, 158-9. Jurjānī writes: “The meaning of the second [example] is that the number four is characterized (ittiṣāf) in *nafs al-amr* with evenness. The truth of this judgment does not entail that evenness or the concept for evenness or characterization exists as among the existents according to *nafs al-amr*, irrespective of whether in the external world or in the mind; Instead, [the judgment] entails the existence of the number four according to itself (*bī ḥasbihā*), even if only in the mind.”

187 Ibid., 158-9.
like dependency, entailment, essential attributes and the like, apply to nafs al-amr, he says:

Text 8. “One who has ascertained the central point of the discussion here, it becomes easy for him to study the realities (al-ḥaqāʾiq) and fine intricacies (al-daqāʾiq). Rather, in fact, [what becomes easy for him is] the wisdom (ʿirfān) of rational sciences (al-ʿulūm al-ʿaqliyya) as opposed to its knowledge (maʿrifa), like a person for whom the matter is difficult (mutaʿadhir). This task is achieved by way of what we have written here as an exposition of nafs al-amr and the difference between it and the external world and the mind.”

According to Jurjānī, by knowing the conditions of things which specifically attach to things in themselves, and likewise which attach to the other realms, one can of course ease one’s study of various metaphysical issues. Importantly, making this effort will also enable one who does not have or finds it difficult to have complete knowledge of the rational sciences to still perceive the real wisdom and main insights contained in the sciences. The route to complete knowledge of the rational sciences may be a long and difficult process for some, but the route to the wisdom of those sciences can be smoothed. In effect, for Jurjānī, having a correct understanding of the three realms – in terms of their distinct meaning and nature, of the different ways in which objects are established in each realm, of the way the realms relate to each other, and finally the kinds of predicates and conditions of things which apply to different realms – is an

188 Jurjānī, Risāla fī taḥqīq nafs al-amr, 104.
inquiry not just vital in itself, but also importantly facilitates an understanding of the
wisdom contained in the rational sciences.

3.4.7 Ontological Status of Nafs al-Amr

Up to this point Jurjānī has been speaking about truth as consisting of a relation
of conformity with either the external world or nafs al-amr. And nafs al-amr, he is
saying, means a realm outside the perceptual faculties. In the final section of the
relevant passage in Ḥāshiya Tajrīd, he turns to the ontological status of nafs al-amr and
considers a key disputed issue: Does nafs al-amr refer to the Active Intellect?

As a preliminary remark, it is worth mentioning that he provides no indication in
his main philosophical works to suggest that he accepts the Active Intellect.¹⁸⁹ In the few
instances where Jurjānī mentions it, he always does so by indicating that he is explaining
or arguing a point according to the falāsifa and maintaining a distance from it. Indeed,
all evidence suggests that Jurjānī rejects the concept of the Active Intellect and in this he
is continuing with the trend among the Sunnī mutakallimūn following Rāzī.

Moreover, as one may expect now, Jurjānī also rejects Ṭūsī’s interpretation of
the ontological status of nafs al-amr as the Active Intellect. That he would reject this
interpretation, however, does not simply result from the demands of maintaining
consistency in his metaphysical scheme having no role for the notion of the Active
Intellect. Nor is his rejection simply enforced by the observation of his predecessors like

¹⁸⁹ These include: (1) Ḥāshiya ‘alā Sharḥ al-Maṭāli‘ (2) Ḥāshiya ‘alā Sharḥ Tajrīd (3) Sharḥ al-
Mawāqif (4) Ḥāshiya Sharḥ Ḥikmat al-‘ayn (5) Ḥāshiya ‘alā Sharḥ Ţawālī‘ al-anwār.
Hillî, that granting the interpretation (i.e., rendering *nafs al-amr* as the Active Intellect) in fact results in the absurd conclusion that the Active Intellect possesses the forms of false judgments. Though to be sure, he is aware of this objection and does cite it to strengthen his overall case against equating *nafs al-amr* with the Active Intellect:

Text 9. “One can also raise an objection based on what they maintain that the impression of the intelligible forms is in an immaterial substance (*jawhar mujarrad*), which is a storehouse (*khazîna*) for the rational soul. They have proved this based on the distinction between the state of inattentiveness and forgetfulness. Since the distinction is also possible for false judgments (*akhkâm kâdhiba*), it entails that their impressions are also present in it. Thus, in this case [of false judgments], if the judgment corresponding to what is impressed in it is true in *nafs al-amr*, then these false judgments will be true in *nafs al-amr*.”190

Briefly, the gist of the argument is that since the state of inattentiveness and forgetfulness can occur in the case of false judgments also, one is led by *falâsifa’s* doctrine of intellectual perception to conclude that the forms of the false judgments are also present in the Active Intellect (or any such immaterial substance). Accordingly, since truth stands for conformity with *nafs al-amr*, which is taken to mean the forms contained in the Active Intellect, a false judgment will become true.191

Instead, and more importantly, Jurjânî is led to this rejection by what he sees as a particular weakness that derives from a conceptual misunderstanding about what the

191 For a fuller explication of the argument, see above (“Historical Overview”).
term *al-amr* refers to, and consequently what the phrase *nafs al-amr* means.

Concerning the problem in identifying *nafs al-amr* with the Active Intellect, he writes:

**Text 10.** “Concerning what is said that *nafs al-amr* is the Active Intellect, and that every judgment that conforms to what is in it is true, otherwise it is false: there is weakness in this view (*fīhī buʿd*) because the only evidence that the expression carries this meaning is by way of an extremely far-fetched assumption (*wajh baʿīdan jiddan*), which is that one takes *al-amr* here in opposition to the created world (*al-khalq*), and by *nafs al-amr* intends the realm of forms abstracted [from matter] (*ʿālam al-mujarradāt*). It is difficult (*yataʿaḍhdharu*) also in this case to characterize judgments established in the Active Intellect with truth and conformity to *nafs al-amr*.”

The significance of the passage is twofold: Jurjānī first uncovers what he sees as the core assumption embedded in the view of equating *nafs al-amr* with the Active Intellect; and second he rejects that assumption. According to Jurjānī, the core assumption in the view is the interpretation of the word *amr* as the opposite of *khalq*. That is to say, in identifying *nafs al-amr* with the Active Intellect, they turn to interpreting *amr* as the immaterial, intelligible forms that are opposed to the material, sensible forms in the world. Accordingly, *amr* is no longer viewed as a thing *simpliciter*, which is how it should have been understood given its conventional usage, but instead refers to an immaterial thing (or form) stripped off its material concomitants.

But, why would they turn to such an interpretation? Though Jurjānī is not concerned with the question, one possibility for this turn could be seen in the belief that

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192 Ibid.
everything which has a concrete existence in the world also has an immaterial existence in another realm, or, alternatively, it belongs to the realm of immaterial forms (‘ālam al-
mujarradāt) which the philosophers take to mean the universal intellect. Given this commitment, they may infer that it is this immaterial form, as opposed to the material form, which more aptly refers to *amr*.

Another source of this interpretation may lie in the fusion between Qur’ānic terminology and a philosophical reading of revelation. The juxtaposition and opposition of the two terms *amr* and *khalq* can be explained by a reference to the Qur’ānic verse: *alladhī lahū'l khalqu wa'l-amr* (“Verily, His are the creation and the command”), occurring in *Surah al-Aʿrāf*, verse 52, where the word *amr*, used in its other established meaning, namely, “command” is coupled with “creation” (*khalq*). For this reason, Qur’ān commentators from the very beginning have adduced this verse to draw a distinction between ‘ālam al-amr (the world of command) and ‘ālam al-khalq (world of creation) – the former referring to the realm where a being assumes existence spontaneously on exercise of Divine command, while the latter denoting the ordinary world where a being is realized gradually in accordance with Divine will. In theological philosophy, the distinction generally lent itself to the formulation of the division between the immaterial, intelligible world and the material, sensible world.


The heart of Jurjānī’s argument is that the term *amr* in the expression *nafs al-amr* cannot reasonably be taken to refer to the immaterial, abstract forms that stand opposed to the material forms in the world. Although in the above passage Jurjānī does not specify why the interpretation is implausible, but this very observation tells us something about how evidently far-fetched such an interpretation is that it requires no explanation. Indeed, since the emergence of the term *nafs al-amr* in the philosophical arena, practically every major author has commonly understood *amr* here with its lexical and conventional meaning, namely, thing or affair. It is however when they proceed to relate *nafs al-amr* with the Active Intellect that there occurs a shift in their analysis regarding the term *amr*, which, as Jurjānī uncovered, is precisely a shift from its interpretation as a thing in general to an immaterial thing. To make this shift, Jurjānī says, is “extremely far-fetched,” and it is easy for one to see why for, he would claim, it goes against the dictates of language, convention, and usage.

Given that the meaning of *amr* proves so crucial a point in the proper understanding of *nafs al-amr*, it is no wonder that Jurjānī on more than one occasion speaks of *nafs al-amr* by first introducing what the word *amr* properly means, which is the thing itself.

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195 So is the term used in various other places in the Qur’ān.

196 One should not overlook here the obvious opposition of *kalām* throughout its history to the emanationist scheme.
Text 11. “Regarding nafs al-amr, its meaning is the very thing (nafs al-shay’) in respect of its own definition (fi ḥadd dhātiḥī); what is intended by al-amr is the thing (shay’) itself.”\(^{197}\)

Text 12. “As for the meaning of nafs al-amr, it is the matter (amr) itself, which is the thing (shay’) itself – matter refers to the thing.”\(^{198}\)

Jurjānī’s emphasis on the meaning of amr as a thing itself, as opposed to an immaterial thing, is perhaps more revelatory of how he views the ontological status of nafs al-amr. Forms of things can be material, particular, and concrete, on one hand, or can be immaterial, universal, and cognitive, on the other. Nafs al-amr, according to Jurjānī, is a realm that contains both kinds of forms – indeed, all forms of all things. Since the external world is only a realm of material forms, and the Active Intellect only the realm of immaterial, abstract forms, nafs al-amr cannot be either. Instead, drawing on the Sufi metaphysics of Ibn al-ʿArabī, especially the works of his commentator Dawūd al-Qaṣṣārī, Jurjānī sees the ontological status of nafs al-amr ultimately as an expression of God’s knowledge which encompasses the forms of all things. Repeating the exact formulation of nafs al-amr found in Qaṣṣārī (d. 1350), he defines nafs al-amr in his Taʿrīfāt as follows:

Text 13. “Nafs al-amr is an expression for [God’s] essential knowledge, which contains the forms of all things, whether

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\(^{197}\) Jurjānī, Ḥāshiya ‘alā Sharḥ al-Tajrīd, 224.

\(^{198}\) Jurjānī, Ḥāshiya ‘alā Sharḥ al-Maṭāli’, 124.
universals or particulars, small or large, in general or in detail, concrete or cognitive.”

To be sure, that the intention here is God’s essential knowledge is immediately obvious from the discussion wherein Qayṣarī provides this articulation, which is about God’s knowledge and specifically his rejection of Ṭūsī’s doctrine which holds that the God’s knowledge of the intellectual substances (like the Active Intellect, etc.) is identical with their existence.

More importantly, Jurjānī’s understanding of nafs al-amr as God’s knowledge implies that insofar as he also holds that one has to capacity to know things as they are in nafs al-amr, it follows that one indeed has a route towards the knowledge and wisdom of God. This point will prove relatively important for Jurjānī in his defense of the sciences that study the natural world, for, as he would hold there, such sciences can actually enable one to discover judgments that conform to nafs al-amr, and thereby reveal the wisdom of God. However, that nafs al-amr, for Jurjānī, is not God’s knowledge simpliciter, but rather an expression for God’s knowledge, there remains a fundamental distinction between the reality of this knowledge which only God knows and its expression which can be apprehended by humans.

Moreover, one can detect two strands in his thinking about the ontological status of nafs al-amr. On one hand, there appears to be a clear influence of Sufi

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199 Jurjānī, Ṭaʿrīfāt, 205 (entry on nafs al-amr). See also Qayṣarī, Maṭlaʿ Khuṣūs al-Kilam (Tehran, 1299), 16.

200 See Qayṣarī, Maṭlaʿ Khuṣūs al-Kilam, 15-17.
metaphysical ideas in his articulation of *nafs al-amr* as God’s knowledge, while on the other hand, there is again a clear rejection of the possibility of equating *nafs al-amr* with the Active Intellect. Accordingly, in this regard, Jurjānī does not appear to go as far as someone like Qayṣarī, who though properly views *nafs al-amr* as an expression of God’s knowledge which cannot plausibly be equated with the Active Intellect, yet does however proceed to countenance the opinion that *nafs al-amr* in a certain respect can be interpreted as the Active Intellect.\(^{201}\)

Finally, it is worth noting that Jurjānī does not only view *nafs al-amr* as an expression of God’s knowledge, but indeed proceeds to consecrate this interpretation by introducing it as the very definition of *nafs al-amr* in his *Taʿrīfāt* (Book of Definitions). Insofar as his *Taʿrīfāt* became a standard reference work in later centuries across the Muslim world, he can be credited with establishing not only the relevance of *nafs al-amr* as an objective criterion of truth, but also the Sufi metaphysical view of viewing its ontological status as an expression of God’s knowledge.

### 3.4.8 Conclusion

This chapter has shown that the ingenuity of Jurjānī’s epistemological project lies precisely in his more “economical, human-centered epistemology”\(^{202}\) that relies on his novel understanding of the crucial concept of *nafs al-amr* and discards altogether the

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\(^{201}\) See ibid.

\(^{202}\) The phrase is taken from Robert Wisnovsky, “Avicenna’s Islamic Reception,” 197.
Active Intellect, itself a fundamental postulate of Avicennian metaphysics. Moreover, he uniquely reinterprets the concept of *nafs al-amr*, which, in his understanding, importantly comes to possess an epistemological, ontological, and theological (or mystical) dimension. It stood as much as a criterion of truth as an ontological category of objective reality. And ultimately, both these notions of truth and reality flowed from, or were grounded in, the deepest truth and reality – the knowledge of God Himself.

What is equally striking is that it is precisely this epistemological framework based on *nafs al-amr* that would prove central in Jurjānī’s distinctive solution to one of the most contentious philosophical problem of the time: what accounts for applying mathematics to the real world? We turn to this issue in the next chapter.
CHAPTER 4:
THE FORGING OF REALISM IN POST-CLASSICAL ISLAM: JURJĀNĪ AGAINST THE SKEPTICS

4.1 Introduction

As a theological-philosophical work, Jurjānī’s commentary on the Mawāqif of Ījī remained relatively unknown among historians of Islamic science until recently. In his seminal essay appearing two decades ago, A. I. Sabra drew attention to its relevance as an important source for the study of Islamic science and philosophy in the post-classical period. In particular, he brought to light two interesting passages which offer strikingly opposing views of the mathematical astronomy of the period – the first being Ījī’s rather

1 The chapter heading is an adaptation of the title of Nicholas Jardine’s article, “The Forging of Modern Realism: Clavius and Kepler Against the Skeptics,” Studies in History and Philosophy of Science 10 (1979): 141-173. Two points should be clarified at the outset. Firstly, cross-cultural comparisons are not the focus of this essay. But, it is worth noting that Jurjānī’s response, at least in terms of its general thrust against the then prevalent skepticism regarding the reality of astronomical conclusions, has an interesting parallel in a later European context, namely, the forging of modern realism at the hands of Clavius and Kepler. That said, the nature of Jurjānī’s predicament is completely different, and so is his response and the manner he understands the key concept of reality and truth. See N. Jardine, “The Forging of Modern Realism.” Secondly, as a point of clarification regarding the use of “realism” in the title, the word should not be interpreted in its modern philosophical or Duhemian sense; indeed, a significant portion of this chapter precisely deals with trying to understand how Jurjānī distinguishes between different kinds of “reality,” and, in particular, conceives of “mathematical reality.”

2 Primary attention was directed to the main text, Mawāqif, of Ījī, but Sabra also collated the latter’s view by utilizing the commentary by Jurjānī. See A. I. Sabra, “Science and Philosophy in Medieval Islamic Theology: The Evidence of Fourteenth Century,” Zeitschrift für Geschichte der Arabisch-Islamischen Wissenschaften 9 (1994): 1-42.
skeptical remarks on astronomical facts as “mere imaginings,” countered by Jurjānī’s forceful response that despite having no existence in the world, they are nonetheless “imagined correctly in accordance with the things themselves” and are not like “ruby mountains” or “ghoul’s fangs.”

3 The passages are discussed again as part of an important overview article that viewed Jurjānī’s response as an evidence of the epistemological confidence of some astronomers in their discipline providing a correct picture of the world as well as insight into God’s creation. Finally, an important recent article, reconsidering the view of mathematical sciences in the fifteenth-century, utilizes the passages, among others, in order to show how they point to a new conception of the ontology and epistemology of mathematical objects. But, perhaps because so little is known about Jurjānī’s intellectual output since it is mostly in the form of commentaries and glosses that are still to be critically evaluated, the task to understand

3 Sabra suggested a philosophical interpretation by viewing the clash between an instrumentalist (or fictionalist) and realist view of the mathematical astronomy of the period. For an alternative view, which argues against viewing Ījī as an instrumentalist, see Robert Morrison, “What Was the Purpose of Astronomy in Ījī’s Kitāb al-Mawāqif fi ‘ilm al-kalām?” in Politics, Patronage and the Transmission of Knowledge in 13th-15th Century Tabriz, ed. Judith Pfeiffer (Leiden, Boston: Brill, 2014): 201-230. It seems to me that neither “instrumentalism” nor even “realism,” as understood in the Duhemian sense, captures the predicament of the post-classical Islamic astronomers, and a more fruitful inquiry will be to examine more closely their distinctive philosophies of science and the way it extends or departs from earlier, traditional understandings. On a reappraisal of the use of “realism” and “instrumentalism” to characterize sixteenth-century astronomy in the Latin context, see Peter Barker and Bernard Goldstein, “Realism and Instrumentalism in Sixteenth Century Astronomy: A Reappraisal,” Perspectives on Science 6.3 (1998): 232-58.


the passages from within his larger context has received little attention among historians or philosophers.

In this chapter, my aim is to provide a broader understanding of Jurjānī’s view of the mathematical sciences from within his own philosophical-theological works.\(^6\) I also show that in addition to his response against Ījī, he offers an equally important defense of the mathematical sciences against the skepticism found in a particular philosophical work written within an Avicennian framework – a defense which, to my knowledge, has not received attention.\(^7\) Part of my goal is to reconstruct, assess, and contextualize the philosophical arguments that Jurjānī deploys against his two opponents, thereby extending previous discussions on the topic. Drawing on the previous chapter, I show that it is ultimately Jurjānī’s distinctive vision of truth and reality that separates him from those opponents skeptical of mathematics. It is precisely this vision that provides the crucial context for his more positive conception of the mathematical sciences, the status of mathematical objects, and the epistemological confidence in its conclusions.

All individuals to the discussion, I shall show, agreed that mathematical notions are conjectural and abstract. Unlike the skeptics, Jurjānī, however, possesses and employs the conceptual wherewithal and analysis to demonstrate that they are nonetheless true

\(^6\) I mainly rely on the following philosophical-theological works by Jurjānī: (1) *Sharḥ al- Mawāqif*, (2) Ḥāshiya ‘alā *Sharḥ al-Tażrīd*, (3) Ḥāshiya ‘alā *Lawāmi‘ al-Asrār fi *Sharḥ Matāli‘ al-Anwār*, (4) Ḥāshiya ‘alā *Sharḥ Ḥikmat al-‘ayn*.

\(^7\) See below for this passage from Ḥāshiya ‘alā *Sharḥ Hikmat al-‘ayn*.
and real. The interest of the arguments lies in the epistemic and ontological theses Jurjānī formulates marking a “radical break from the traditional forms of realism.”

Ījī’s *Mawāqif*, as a whole, is a theologically-motivated work that seeks to vindicate the Ashʿarite doctrine, and that sets itself to counter the views of falsafa, even as it consciously appropriates certain elements of the latter. It includes, among other criticisms, a skeptical assessment of the reality and certainty of the kinds of objects discussed in the mathematical sciences, such as numbers, geometrical shapes and bodies, astronomical hypotheses, and so on. The skeptical remarks touch on points of considerable philosophical import. Yet it is the broader context of his work in terms of its self-avowedly critical stance against almost the entire breadth of Avicennian...

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10 *Falsafa* represented the Hellenized intellectual tradition of philosophy in Islam, initiated by al-Kindī (d. 252/866), and developed subsequently by al-Fārābī (d. 338/951), and, most importantly, Ibn Ṣinā (lat. Avicenna, d. 428/1037).

11 The main text of Ījī and its commentary by Jurjānī are contained in the edition by Muhammad Badr al-Dīn al-Nasānī, in eight parts bound in four volumes, Cairo: Maṭbaʿat al-Saʿāda, 1325/1907, which also contains two glosses by ʿAbd al-Ḥakīm al-Siyālkūṭī and Hasan Čelebi ibn Muḥammad-shāh al-Fanārī. On the critical stance it adopts towards falsafa, see Sabra, “Science and Philosophy in Medieval Islamic Theology;” and Alnoor Dhanani, “Al-Mawāqif fī ʿilm al-kalām by Āḍūd al-Dīn al-Ījī (d. 1355), and Its Commentaries,” in *The Oxford Handbook of Islamic Philosophy*, eds. Khaled El-Rouayheb and Sabine Schmidtke, Oxford Handbooks Online, accessed online. Dhanani writes: “On one level, the *Mawāqif* exemplifies what has been termed the ‘Avicennization of kalām.’ On a deeper level, it reaffirms a commitment to the principles of classical Ashʿarī kalām and contests central falsafa positions, even as it utilizes falsafa terminology and concepts.”
philosophy that appears to give a particularly confrontational connotation to his remarks. Although Jurjānī’s commentary on the *Mawāqif* provides reinforcing additions and clarifications, there are two main skeptical passages where he breaks away from the original to provide a forceful rejoinder. The first is his response to a theologically-motivated skeptical argument against geometrical objects, and the second is his notable rebuff to the skeptical argument against astronomical hypotheses. In both cases, by a string of different arguments of varying force, Jurjānī defends the truth and reality of mathematical notions. Moreover, both the original skeptical remarks and Jurjānī’s response acquire a particular historical significance in the context of how religious scholars with Ashʿarite theological leanings proceed in negotiating the *falsafī* tradition of mathematical sciences. But they are also of philosophical import, for the arguments that are fully developed in the two responses of Jurjānī here will be adumbrated by him in his response to another more philosophically-motivated skepticism that he deals with in his other work.

*Kātibī’s Ḥikmat al-‘ayn*, a particularly significant philosophical-theological work written in the framework of Avicennian philosophy, focuses on the two theoretical

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sciences of metaphysics and natural philosophy, but ignores mathematics. In attempting to offer a reason for this omission, Shams al-Dīn Muḥammad al-Bukhārī’s commentary draws on a philosophically-motivated skeptical view of mathematics which begins from their conjectural nature. It ultimately proceeds to downgrade the import of mathematics as a source of knowledge about concretely existing things of the material world, while cherishing, instead, the pursuit of natural philosophy and metaphysics.

Jurjānī’s gloss on Bukhārī’s commentary of the Ḥikmat al-‘ayn includes, among other additions, a response to this skeptical view, wherein he flatly rejects that mathematics has no contact with the real world. Conversely, he goes on to argue that by means of conjectural notions mathematical sciences can, in fact, reveal the conditions of concretely existing things, and thus ought not to be considered, on this count, inferior to metaphysics or natural philosophy.

Despite coming from radically different directions, both the theologically- and philosophically-motivated skeptical arguments begin from the same basic premise: mathematical sciences are based on conjectural and mental entities. They continue, evidently guided by the different aims and standpoints of their authors, to provide an

13 I utilize the following edition, Ḥikmat al-‘ayn (Qazān: al-Matba’a al-Karīmiyyah, 1319 [1902]) which contains al- Kātibī’s main text (matn), Shams al-Dīn Muḥammad (ibn Mubārakshāh) al-Bukhārī’s commentary (sharḥ) and Jurjānī’s gloss (ḥāshiya). On a brief introduction to the work and a translation of a selection concerning the problem of existence and quiddity and their relationship to the Necessary Being, see An Anthology of Philosophy in Persia, vol. 4: From the School of Illumination to Philosophical Mysticism, eds. Seyyed Hossein Nasr and Mehdi Aminrazavi (London, New York: I. B. Tauris Publishers, 2012): 253-266.
assessment of the role of mathematics in providing real knowledge, which, to varying degrees, they find to be insignificant.

In order to understand the two skeptical positions that Jurjānī responds against, it is useful to start by asking the origins of their shared background assumption: the idea of mathematics as based on conjectural or mental objects. Notably, the idea traces back to Ibn Sīnā who, in his integration of the Platonic and Peripatetic traditions of falsafa, not only provided a conceptual framework for all domains of scientific and philosophical knowledge, but also gave a particularly prominent place to mathematical sciences. However, it was through his account of the proper subject of mathematical sciences and explanation of the epistemological process and perceptual faculties in which one attains to such knowledge that we observe (and as was observed by Ibn Sīnā’s successors themselves) a rather subordinate role assigned to mathematics compared to, say, natural philosophy and metaphysics. Let us start then by considering Ibn Sīnā’s views.

4.2 Ibn Sīnā’s View on the Mathematical Sciences

Two articles have discussed Ibn Sīnā’s view of the mathematical sciences and can be utilized for a quick overview of the main points. As Endress describes, regarding the

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position of the mathematical sciences, in *The Division of the Rational Sciences* Ibn Sinā repeats the classical Aristotelian characterization of the intermediate position. As part of theoretical philosophy (*al-hikma al-nazariyya*), mathematics is the “intermediate science” (*al-‘ilm al-awsat*) between physics and metaphysics. Its objects are “bound by matter and motion,” but “their concepts – their definitions – are not, since they can be understood without reference to any material concomitant.”

As Endress notes, Ibn Sinā deals with the subject matter of mathematics in more detail in his *al-Shifā‘* (“The Healing”). Mathematics is an abstractive science, for it considers objects existing in matter, but without the matter itself. Its objects include numbers and measure, among others. While numbers may be found both in sensible and in non-sensible objects, measure, however, is never separate from matter.

Mathematics treats them not as numbers qua numbers or measure qua measure, but


17 Endress, “Mathematics and Philosophy in Medieval Islam,” 141.

18 Ibid.

19 Ibid.

20 Ibid., 141-2.
“the subject is measure and number qua abstracted in the mind, from matter.”21 The
measure treated in geometry is not an “absolute measure,” as of “prime matter, but
accidental, as of bodies possessing the three dimensions width, depth and height.”22 In
the case of numbers found in sensible things, the intellect abstracts them from any
bodily substrate and when they arrive in the imagination, in their most abstract form,
they become the object of mathematics.23 As opposed to numbers found in natural
things are numbers that have a being among the “separate existents” (al-ashyā’ al-
mufarraqa).24 But such numbers cannot be “subjected to any quantitative relation,
augmentation, or reduction.” As an object of these functions, “the number must be in
matter.”25 Such a number, precisely, is the subject of arithmetic: “studying number in
respect of its being in a bodily nature, albeit abstracted from its natural states in the
imagination.”26 The study of the “essence of number,” or of “absolute number,” or of
“number qua number,” however, is “an object of metaphysics indeed.”27

It is this notion of abstraction which features at the heart of Ibn Sīnā’s view of
mathematical objects which also provides the key to understanding mathematics’

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21 Ibid., 141.
22 Ibid.
23 Ibid., 142.
24 Ibid.
25 Ibid.
26 Ibid.
27 Ibid.
comparatively subordinate status (compared to other theoretical sciences). To see this point, one needs to recall what abstraction is and in how many ways it is done for Ibn Sīnā.28 One can, in this regard, utilize a particularly lucid medieval rendering of the abstractive process:29 According to Ibn Sīnā, abstraction is the apprehension of the form of thing.30 “Sense” apprehends form in one way, “imagination” (takhayyul) in another, “estimation” (wahm) in a third way, and “intellect” in still another way, since some of them abstract the forms perfectly and others imperfectly.31 A form is said to be abstracted perfectly in the event that it is apprehended purely and simply without any material concomitant whatsoever.32 To whatever extent the abstracted form is attached with its material concomitants, the object will be apprehended imperfectly. Thus “sight


29 This is the rendering provided by the famous Toledan translator and scholastic philosopher, Domino Gundisalvo (fl. c. 1150) who also translated works of Ibn Sīnā into Latin. See Domingo Gundisalvo, “Classification of the Sciences,” A Source Book in Medieval Science, ed. Edward Grant (Massachusetts: Harvard University, 1974): 64-66. Cf. Ibn Sīnā, al-Shifāʾ, al-Ṭabīʿī, on the four stages of intellectual perception: sense perception (ḥiss), imagination (takhayyul), estimation (wahm), and intellection (taʿaqqul). See, also, McGinnis, Avicenna, 99-100.

30 Domingo Gundisalvo, “Classification of the Sciences,” 65.

31 Ibid.

32 Ibid.
abstracts an object only imperfectly, since it apprehends it only in the presence of matter and with many accidents.”\textsuperscript{33}

“Imagination, however abstracts a little more form from matter. Since form may exist in the imagination itself, it does not require the presence of matter.”\textsuperscript{34} But, still, imagination does not separate the form “from all the accidents of matter.”\textsuperscript{35} Indeed, according to Ibn Sīnā, “forms are in the imagination only because they are ‘sensibles,’ that is, according to quantity, and some quality and position.”\textsuperscript{36} For example, imagination cannot imagine form in a manner that “all the species can come together in it. For when a man is imagined, he can be imagined as one man and it is possible that other men are different than the one imagined.”\textsuperscript{37}

Estimation “transcends this order of abstraction,” since it apprehends nonmaterial intentions, including both those that do not exist in matter, such as good and evil, and those that can only exist in corporeal matter, such as figure, color, position, and such things.\textsuperscript{38} Therefore, “when estimation apprehends material things, it abstracts them from matter and it apprehends nonmaterial intentions, even though

\textsuperscript{33} Ibid.
\textsuperscript{34} Ibid.
\textsuperscript{35} Ibid.
\textsuperscript{36} Ibid.
\textsuperscript{37} Ibid.
\textsuperscript{38} Ibid.
they might be in matter.”

According to Ibn Sīnā, it is indeed the intellect that apprehends forms with “perfect abstraction,” that is, an “apprehension stripped from every trace of matter.”

This arises ultimately through a descending process whereby the intelligible immaterial forms emanated by the Active Intellect serve to actualize the potential intelligibles in the mind leading to true, real, and certain knowledge.

The singular relevance of this framework for our discussion is that Ibn Sīnā identifies mathematical thinking as arising from the faculty of estimation (wahm). In an article that argues for this identification, Shlomo Pines provides at least two passages from Ibn Sīnā as evidence: As Pines notes, first, this conception of mathematics may be inferred from a statement in al-Najāt (The Salvation) in which it is stated that every theoretical science has its object either “existent” things or things “conceived by the

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39 Ibid.

40 Ibid.

41 Ibid. See D. Black, “Estimation (Wahm) in Avicenna,” 16-7. (“On the one hand, he wishes to claim that estimation and intellect have two distinct natures, each of which can go its own way, and form its own judgments independently of the other. At the same time, Avicenna implies that the only true nature in the human soul is its intellectual power, for only its judgments are fully in accordance with reality, and fully able to lead human beings to the fulfillment of their proper, intellectual end, i.e., certain knowledge of the truth.”)

42 McGinnis, Avicenna, 100, 135-6.


estimative faculty” (*al-wahmiyyāt*). The latter is of course not metaphysics or natural philosophy, and thus “by means of the process of elimination it can be shown that the latter cannot possibly be the object of any theoretical science other than mathematics.”45 Second, the conclusion is borne of a passage of the Metaphysics of Ibn Sīnā’s *al-Shifā’,* referring to a science which deals with that which exists in (things) perceived by the senses, but is abstracted from these things by means of the estimative faculty (*al-tawahhum*) and by means of the act of definition (*al-taḥdīd*). It is clear that the science which “[Ibn Sīnā] has in mind in using this phrase is mathematics.”46 In this connection, Pines also goes on to quote a rather important statement from Ṭūsī in his commentary on Ibn Sīnā’s *al-Ishārāt wa’l-Tanbihāt* (following Pines’s translation): “It is legitimate that the judgments of the estimative faculty (*al-wahm*) are recognized as true by the intellect. And because of the correspondence between them, there is hardly any difference of opinion with regard to (the kind of propositions that are found in) geometry (*al-handasiyyāt*).” As Pines concludes, it seems clear that for Ṭūsī, who is attempting to provide a correct interpretation of Ibn Sīnā, geometrical judgments originate in the estimative faculty.47

We can turn now from a presentation to an assessment of the above rendering of Ibn Sīnā’s views. That mathematical knowledge originates from the estimative faculty,

45 Ibid., 367.
46 Ibid.
47 Ibid.
which provides forms that are still imperfect being attached to matter, Ibn Sīnā held mathematics, in this respect, to be inferior to metaphysics and natural philosophy. This is because, unlike mathematics, the latter two sciences provide knowledge that stems from the superior intellectual faculty, in turn illuminated by the emanation of forms from the Active Intellect, which serves to designate the knowledge as true and real. On the other hand, mathematics deriving from an imperfect abstraction can only be said to lead to an approximation of true knowledge, and for that reason could only be utilized to provide a correct model of the real world, not knowledge of the real world itself.\footnote{According to Avicenna, \textit{mawḥūmāt} can be true; but because they can also be false, they are not guaranteed to be true, unlike \textit{maʿqūlāt}, which are guaranteed to be true, in virtue of their correspondence with the forms-in-themselves in the Agent Intellect. See, also, S. Pines, “Philosophy, Mathematics and the Concepts of Space,” 363. Cf. Black, “Estimation (\textit{Wahm}) in Avicenna,” 17.}

Indeed, the study of the real, external world and the immaterial beings, forming the two most important domains of knowledge for Ibn Sīnā, was the object of natural philosophy and metaphysics since they alone were held to have contact with the real world. For this reason, mathematics was generally considered inferior to natural philosophy and metaphysics, being useful as an introduction to the two sciences.\footnote{Pines, “Philosophy, Mathematics and the Concepts of Space,” 363.}

Moreover, in view of the concept of the objects of mathematics as abstract objects, and the resulting contrast between the objects of natural philosophy as real objects, the fact that mathematical sciences – such as astronomy, optics, and others – “aimed at providing a satisfactory model for some classes of phenomena belonging to the real physical world constituted a problem, for which a compromise solution was
often proposed.”50 In theory, astronomy could of course be completely divorced from natural philosophy, and confined to the task of saving appearances, i.e., elaborating astronomical hypotheses that should not be interpreted as descriptions of the constitution of the world, but as useful tools for the systematization and prediction of apparent positions and motions of the heavenly bodies.51 However, in practice, astronomers could not concede that the astronomical theories in their capacity to accurately predict and regulate the motions and positions of the bodies had in fact no contact with the real world.52 Upholding astronomy’s claim to explain the real world, they were led to the difficulties posed by the relation between natural philosophy and astronomy – in particular, the difficulties stemming from attempts to bring Ptolemy’s mathematical astronomy in harmony with Aristotelian natural philosophy.53

50 Ibid., 364.


Having looked at the conception of mathematics in Ibn Sīnā, we turn to consider its legacy in the form of two particularly skeptical views of mathematics that will later prompt a response from Jurjānī.

4.3 Philosophically-Motivated Skeptical Argument Against Mathematics

Kātibī’s Ḥikmat al-ʿayn, an influential philosophical work written in the tradition of falsafa, focuses on natural philosophy and metaphysics, and complements the authors’ previous work on logic, Al-ʿayn. Shams al-Dīn al-Bukhārī’s commentary (sharḥ) of the Ḥikma begins by repeating the classical topos of the classification of sciences found in Ibn Sīnā. Philosophy divides into theoretical and practical, the former related to what one seeks to know, while the latter concerned with what one seeks to do. As a theoretical science, mathematics is accorded the intermediate position, below metaphysics and above natural philosophy. Its objects do not conjoin with matter as a condition for their existence, but do conjoin as a condition for their apprehension. Thus it is set apart from metaphysics, whose objects do not conjoin with matter as a condition for their existence, and from natural philosophy, whose objects conjoin with matter as a condition for their existence and apprehension.

56 Ibid., 5.
Having defined the three theoretical sciences, Bukhārī turns to Kātibī’s statement that the subject of his book will be metaphysics and natural philosophy. Though Kātibī himself offers no reason for omitting mathematics, it is left to his commentator, Bukhārī, who takes to explaining the omission in an important passage by tapping into a current of skeptical views about mathematics.

“(The author) did not examine mathematics except for a small portion in terms of astronomy due to what the author of Al-mashārī’ wa’l-muṭāraḥāt [i.e Suhrawardī] has said that the majority of it is based on conjectural entities (al-umūr al-mawhūma) and mentally-posited considerations (al-i’tibārāt al-dhihniyya) while the important task is to study individually existing things (a’yān al-mawjūdāt). It is said that because of this al-Shaykh al-Ra’īs [lit. Grand Master, i.e., Ibn Sīnā] did not immerse himself in the mathematical sciences as much as he immersed himself in natural philosophy and metaphysics.”

The portrayal of mathematics is skeptical indeed! Being based on conjectural entities and mental considerations, it can only study abstract objects. Hence, it is clearly inadequate in performing the most important task of philosophy, which is the study of real things having individual existence, and which indeed can only be executed by natural philosophy and metaphysics. Such a negative portrayal of mathematics (and the elevation of natural philosophy and metaphysics) can, in fact, be implied from Ibn Sīnā’s conception, as we have seen, and so it is no wonder that Ibn Sīnā’s successors can impute it back onto Ibn Sīnā himself in an effort to explain why the latter did not overly

57 Ibid., 6.
immerge himself in the discipline. Moreover, the establishment of a kind of pedigree for the view that traces back to Suhrawardī and Ibn Sīnā, both well-known names in the then prevalent philosophical discourse, would have invested the view with significant authority and may have worked – whether deliberately or inadvertently – to further reinforce the view as well.

But for the philosophical import of the passage, we must consider the “conjectural entities” (al-umūr al-mawhūma) and the “mentally-posited considerations” (al-iʿtibārāt al-dhihniyya) that are taken here as the foundation of mathematics. The characterization of its objects as conjectural (wahmī) is straightforwardly derived from Ibn Sīnā’s thesis that mathematical thinking originates in the estimative (or conjectural, wahm) faculty. The expression would have been taken to distinguish such entities from the more real objects that are actualized in the intellect through an emanation from the Active Intellect. The other term Suhrawardī utilizes, al-iʿtibārāt al-dhihniyya, as a contemporary scholar has noted, is difficult to translate into English. In light of a famous passage in the Logic (Manṭiq) of Ibn Sīnā’s Shifā‘ where Ibn Sīnā discusses the three iʿtibārāt of quiddity, and in light of Suhrawardī’s usage of the term in the Hikmat al-ishrāq, the word iʿtibār has been taken to mean “... a subjective manner of looking at

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58 This is probably the way Ibn Sīnā was perceived, but the reality is that he immersed himself in the mathematical sciences. See, for example, his ca. 650 page “summary” of the Almagest (Mukhtaṣar al-Majistī)!  

a thing, something produced or posited through the analytic work of reason. It is an aspect of a thing which primarily appears in the subject and which, then, is projected onto the thing itself as if it were an objective aspect of the thing. Relevant to our discussion, the two key features of *iʿtibār* are that it refers to an aspect of a thing and that this aspect is mentally-posited. We will later see how Jurjānī will accept this very understanding of *iʿtibār* and will proceed to utilize it to argue for a certain reality of mathematical objects. But what is immediately clear from this definition is that, insofar as *iʿtibār* denotes mentally-posited entities, it does not refer to objects having existence in the external world or to the immaterial beings discussed in metaphysics. To the extent that it is only the latter two classes of entities that are understood in the Avicennian framework as constituting reality, mathematical objects through this characterization are, again, taken to have no contact with the real world.

Moreover, this characterization of the subject of mathematics as non-existing, mentally-posited objects is only confirmed by its opposition and juxtaposition with the “individually existing things,” (*aʿyān al-mawjūdāt*) which Suhrawardī is taken to claim constitutes the important task of philosophy. The inferior status of mathematics depicted here lies precisely in an understanding of philosophy being about the real world, and in an interpretation of mathematics’ subject as objects that are unconnected to reality.

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60 See above note for this quote by T. Izutsu.

61 Cf. Jurjānī, *Taʿrifāt*, 34, (“*amr iʿtibārī*” – it refers to an entity that exists only in the mind of the person considering it and during the time he is considering it).
Finally, as a point that bears upon the peculiar status of astronomy as a mixed science, it is worth observing that Bukhārī says that while Kātibī does not fully examine the mathematical sciences, he does however proceed to discuss astronomy. Astronomy’s inclusion in a philosophical work that self-avowedly aims to understand the individual, existing things seems to suggest that despite astronomy’s obvious mathematical, technical, and abstract aspects, it was nonetheless considered to have some foundation in reality. To be sure, the view was not unique in any way, since it was Aristotle himself who had viewed astronomy as the mathematical science that had the closest connection with philosophy. But insofar as these authors can be said to have a confidence in the ability of astronomy to track reality, their view of astronomy should be distinguished from another view that would also include astronomy in their philosophical-theological works, but would crucially declare it to be only predictive or regulative, not a description of the world. This of course is the view of Ījī, whose conception of mathematics in general, and astronomy in particular, provides, as such, the second horn Jurjānī will wrestle with.

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62 Aristotle, Metaphysics, 1073, 65 f.; see also S. Pines, “Philosophy, Mathematics and the Concepts of Space,” 64.

63 In modern philosophical parlance, this is commonly identified as the “instrumentalist” view of astronomy, as opposed to the “realist” view. A recent article questions the applicability of the categories of “instrumentalism” and “realism” for studies of pre-modern astronomy; see Gad Freudenthal, “‘Instrumentalism’ and ‘Realism’ as Categories in the History of Astronomy: Duhem vs. Popper, Maimonides vs. Gersonides,” Centaurus 45 (2003): 227–48.
4.4 Theologically-Motivated Skeptical Argument Against Mathematics

4.4.1 Against Geometry

Ījī’s Mawāqif is a theological-philosophical work whose purpose as a whole is to vindicate the Ashʿarite doctrine, and which, in general, adopts a fairly critical stance against the Avicennian framework, even as it self-consciously appropriates certain aspects of the latter.64 This is observed not just in the critical evaluation of the substantive theses of the falāsifā, but also, as we shall glimpse, in the tenor of expressions and images that are evoked which, at times, seem to depict a charged response.

Having discussed the concepts of accident, quantity, and quality in the third section (mawqif, or station), Ījī then turns to the remarks of the geometers (muhandisūn) and asks about the status of geometrical objects such as lines, planes, and bodies.65 Concerning the status of such objects like sphere, cylinder, pyramid, and the like, he draws on their conjectural nature to make a point about the weakness of geometry:

“All these are conjectural entities (umūr wahmiyya); one does not know their existence externally. Based upon them are their science in which they claim certainty (al-yaqīn).”66

64 See Alnoor Dhanani, “Al-Mawāqif fī ʿilm al-kalām.”
65 Ījī, Mawaqif, vol. 6, 164-5.
66 Ibid.
One may note a tinge of denigration. The practitioners of geometry claim certainty for their discipline, while the truth, Ījī might explain to his students, is that their science studies objects that are only conjectural and that are not known to have existence in the real world. Aside from the belittlement of geometry, it can be observed that Ījī is clearly drawing on the conception of mathematical objects as conjectural, an idea which we have seen traces back to Ibn Sīnā. Indeed, in this particular aspect of the philosophical underpinnings of his view in terms of where mathematical thinking originates, Ījī’s conception appears not so dissimilar to those of the falāsifa who are critical of mathematics.67

However, insofar as Ījī continues to explain in the same passage that one does not know the external existence of such objects like sphere or pyramid, there is an important distinction that needs to be drawn between his view and that of the falāsifa. It is true that according to the falāsifa the objects studied in geometry are measure abstracted from matter. That is, however, possible since they hold that the measure (miqdār, or continuous quantity) actually does exist in matter, even if only accidentally. There are bodies having continuous extension, in one, two or three dimensions, wherein the measure inherees and from where it can be abstracted. In other words and simply put, they hold that objects like spheres and pyramids have an accidental existence in the external world in terms of continuous bodies that possess them.68 On the other hand,

68 For an elaboration, see above section on Ibn Sīnā’s views of the philosophy of mathematics. Cf. Ījī, Mawāqif, vol. 5, 76.
when Ījī states that say a sphere has no existence in the external world, what he in fact is saying, or at least those reading him take him to be saying, ⁶⁹ is that the sphere cannot even have an accidental existence in terms of a spherical body. Indeed, one does not know if there are continuous bodies that are spheres, pyramids, cylinders and so on in the external world; instead, the continuity of bodies is only derived from estimation (wahm). ⁷⁰ But, why would Ījī maintain such a view? The answer takes us further into a more fundamental divergence between the two views on the issue of the nature of a body.

Unlike the falāsifa, who recognize continuous quantity (like measure), the mutakallimūn, Ījī explains elsewhere, reject measure (or magnitude, miqdār) based on the fact that, according to them, a body is composed from the smallest indivisible units (juz’ lā yatajazza’).⁷¹ Accordingly, the continuity between the parts which compose a body is actually not a real continuity, as maintained by the falāsifa. Instead, the parts are really discrete except that one cannot perceive their discreteness due to the exceedingly minute distance between them. A body composed of small indivisible units, he continues, does not establish the existence of an object in terms of solid bodies possessing shapes, because in fact there are only singular substances which, if they are arranged in a row are called a line, or in a two directions are called a plane, or in three

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⁶⁹ See gloss by Sīyālkūtī at Mawāqif, vol. 6, 164.
⁷⁰ Ibid.
⁷¹ Mawāqif, vol. 5, 76-80 (section on measure, or miqdār).
directions are called a body.\textsuperscript{72} Thus all such objects, he concludes, are from the category of substance (jawhar). There is no existence for a measure (or continuous quantity) whether a line, a plane or a mathematical body, as believed by the philosophers.\textsuperscript{73} In the same vein, he does proceed to discuss the two arguments philosophers adduce to establish continuous quantity.\textsuperscript{74} But, he replies, that both their proofs are based on the rejection of the doctrine of the smallest indivisible unit. Instead, they base their proof on the existence of matter (hayūlā), and an understanding of body as being composed of matter and form.\textsuperscript{75}

Here, in their definition of body, lies precisely the distinction that, Ījī explains, separates the mutakallimūn from the philosophers.\textsuperscript{76} According to the philosophers, a substance (jawhar) is a matter (hayūlā) if it is the substratum (maḥall), or form (ṣūra) if it is what inheres in the substratum (ḥāll).\textsuperscript{77} If it is composed of both it is called a body (jīsm). Upon an alternative articulation, a substance, if it possesses three dimensions, is a body. On the other hand, according to the mutakallimūn, substance is only a space-occupying object (mutaḥayyiz). If it accepts division, even in one direction, it is a body.

\textsuperscript{72} Ibid., 76.
\textsuperscript{73} Ibid.
\textsuperscript{74} Ibid., 77-80.
\textsuperscript{75} Ibid., 80.
\textsuperscript{76} Ibid., vol. 6, 285-288.
\textsuperscript{77} Ibid., 286.
(jisim); otherwise it is a singular substance (jawhar fard, or atom). Simply put, a body, for them, is a space-occupying substance that accepts division even in one direction.\textsuperscript{78}

This dispute, ultimately between a hylomorphic theory of matter, favored by the philosophers, and a rather atomistic conception of matter, favored by the mutakallimūn,\textsuperscript{79} is again discussed separately by Ījī in several dense chapters in his

\textsuperscript{78} Ibid., 288. Cf. Alnoor Dhanani, “Al-Mawāqif fī ʿilm al-kalām,” 384-5. Dhanani summarizes: The constitution of bodies, which includes the view that they are constituted from indivisible atoms, is found in the Fourth Station of al-Mawāqif—"On jawāhir." The term jawhar (plural jawāhir) can refer to both the substances of falsafa and to the space occupying bodies or atoms of kalām. Al-Ījī begins by presenting the contrasting positions of these two disciplines:

“The philosophers hold that jawhar, if it inheres [in a substrate], is form (ṣūra), or if it is the substrate in which the form inheres, then it is matter (hayūlā), or if it is a combination of them both, then it is body (jisim), or if it is attached to the body in the manner of governance (tadabbur) and the exercise of independent action (tasarruf), then it is soul; otherwise it is intellect. This position is based on the denial of atomism ... the mutakallimūn hold that jawhar is nothing but that which is space-occupying (mutaḥayyiz), as mentioned previously. If the space occupying object is capable of division, then it is body (jisim) but if it is incapable of further division, then it is the atom (jawhar fard).” (Mawāqif, vol. 6, 285-88).

\textsuperscript{79} To be sure, the post-classical history of this clash appears rich, complex, and multi-faceted, and is indeed one where many pieces still need to be pieced together before a somewhat clearer understanding of this issue can emerge. On the issue of atomism in post-classical period, see for now, Adi Setia, “Atomism Versus Hylomorphism in the Kalām of al-Fakhr al-Dīn al-Rāzī: A Preliminary Survey of the Maṭālib al-ʿĀliyya,” Islam & Science 4.2 (2006): 113-140; Alnoor Dhanani, “The Impact of Ibn Sinā’s Critique of Atomism on Subsequent Kalām Discussions of Atomism,” Arabic Sciences and Philosophy 25 (2015): 79–104; and Dhanani, “Al-Mawāqif,” 384-8. In the latter, Dhanani points that Ibn Sinā’s arguments against atomism and Fakhr al-Dīn al-Rāzī’s reversal and then defense of atomism forms the context for Ījī’s discussion of atomism. He writes:

“Classical kalām had embraced an atomistic cosmology, refining it over the course of the eighth to eleventh centuries CE, establishing what Abdel Hamid Sabra has characterized as “an alternative philosophy to Hellenizing falsafa” (Sabra 2006, 199). In a long discussion in the Physics of the Shifā’, Ibn Sinā critiqued the arguments adduced by the mutakallimūn in support of atomism, thereby forcing post-Avicennan mutakallimūn to either respond to his critique or abandon atomism (Marmura 1991–92; Lettinck 1999; Ibn Sinā, Physics, 2:273–319). The role of Fakhr al-Dīn al-Rāzī is significant for the continuation of atomism in post-Avicennan Sunnī kalām. He embraced Ibn Sinā’s antiatomist arguments in his early falsafa-oriented writings such as al-Mabāḥith al-Mashriqiyya, but he reversed this position in his later kalām writings such as al-Arbā’īn fi usul al-dīn, Muhaṣṣal afkār al-mutaqaddimin wa l-muta’akhkharīn, and al-Maṭālib al-ʿāliyya, in which he refuted these antiatomist arguments and added additional arguments in support of atomism. Thus Ibn Sinā’s arguments against atomism and Fakhr al-Dīn al-Rāzī’s
Mawāqif on the definition of body.80 He lays down the position of the *mutakallimūn* that a body can be divided into a finite number of indivisible parts in actuality, and offers several arguments for their position. Contra *mutakallimūn*, the philosophers maintain that a body can be divided into infinite parts potentially, and Ījī then turns to present the philosophers’ position and their arguments, as well as their proofs for the existence of matter and form. In all of this, the focus appears primarily on the presentation of both doctrines, as self-autonomous and opposing views that derive from certain basic premises. For example, at one point, Ījī repeats the view of the *mutakallimūn* that the continuity of body is just an expression of the aggregation of small indivisible parts, and so the continuity is not established in reality.81 But some might say that continuity is rather a unity and likewise discreteness is multiplicity, and both are in fact accidental to a body. To this, Ījī characteristically replies that “upon you is the proof (*fa-ʿalaykum bi-bayān*) that continuity is part of a body, since we favor (the position of) its impossibility (*fa-innā min warāʿ al-manʿ*).”82

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80 Mawāqif, vol. 7, 6-69.

81 Ibid., 37-8. For an elaboration of Ījī’s stance in support of atomism, see Dhanani, “Al-Mawāqif,” 387. Ījī concludes his arguments in defense of atomism with the remark, “Even though there are dialectical responses (*jawāb jadalan*) to some of these proofs, the author (*al-muṣannif*) is satisfied with them” (Mawāqif, vol. 7, 21).

82 Ibid., 39. As pointed by Wisnovsky, this move by Ījī is ironic, since Ibn Sinā’s arguments against the atomists are based on the conjectural (*wahmi*) nature of their models of how atoms combine to form bodies, etc. It is for this reason, according to Ibn Sinā, that one must be careful not to confuse *mawhumāt* with *ma qūlāt*. Ījī is turning the tables, as it were, by maintaining that Ibn Sinā’s continuity is *wahmi*, but that the atomists division is real.
Returning to Ījī’s statement of not knowing the external existence of geometrical objects and of them being conjectural (wahmī), one can now recognize the import and the distinctiveness of his view. The reason why one does not know their external existence, for Ījī, is in fact due to the disputed issue of whether a body is continuous in itself or not. In line with the doctrine of the mutakallimūn, a body is not continuous in itself, for it is taken to be composed of small indivisible parts. The only continuity that one can perceive in bodies actually lies in one’s estimation (wahm), not the external world. Accordingly, the notion of continuous quantities such as lines, planes and bodies which is treated in geometry not only originate from the estimation, but indeed can only originate from it. Continuous quantity is not an accident of external bodies, like the philosophers hold, but is an estimation of the mind.83

A final point that emerges from Ījī’s remark on geometrical objects concerns the epistemological confidence taken to be generated by such objects, and by extension, a study of such objects, i.e., geometry. In his meaningful gesture, “based upon them are their science in which they claim certainty,” the suggestion is obvious that the claim of certainty or certain knowledge does not apply to conjectural objects, not known to have external existence, like the objects of geometry. But it is unclear how Ījī can take judgments of geometry to be anything less than certain, for he is clearly not someone who would deny that, say, the sum of two right angles equals the sum of the angles of a triangle. It seems then that in his overall thrust to downplay the sciences of the

83 Mawāqif, vol. 6, 164 (see gloss by Siyālkūṭī).
philosophers, he may be using certainty here to refer to a kind of property that can only properly be attributed to external objects, not to mental entities. External objects possess certainty, mental objects do not. But even if Ījī did not really intend this meaning, it is precisely this clear-cut division between external and mental entities, former being true and certain, the latter its opposite, that Jurjānī will later problematize. For he would drive a conceptual wedge in the simplistic dichotomy between external and mental entities by affirming a particular kind of mental entity, one that is true, real, and certain.

4.4.2 Against Astronomy

Until now Ījī has provided his view on geometrical objects. In the section on the types of natural bodies, Ījī turns to the heavenly bodies studied in mathematical astronomy and provides a description of what the astronomers say about them. He begins with an elaborate presentation, enumerating the various points, circles, and motions assumed in the heavens: celestial poles, equator, zodiacal circle, solstitial and equinoctial colure, meridians, horizons, equinoxes, east-to-west and west-to-east motions, latitude circle, horizon circle, prime vertical, altitude circle, and so on. Turning next to an assessment of these circles, etc., he offers his notable judgment:

“All these are conjectural things (umūr mawhūma) that have no existence in the external world (al-khārij). [Religious] prohibition does not extend to them (la ḥajra fi mithlihā). They are not related with belief (iʿtiqād), nor are they subject to affirmation or negation.

85 Ibid.
Instead, we have only cited them so that you may grasp their intentions. And when you see them as mere imaginings (mahd takhayyulât) which are more tenuous than a spider’s web you will cease to be frightened by the clanking noise of these words.”

The passage is instructive at several levels. As a preliminary point, there is an immediate ambiguity in translation that has become a point of divergence among contemporary authors. The expression la ḥajra fī mithlihā, written as it is in the Arabic script without the diacritical marks, brings the possibility that instead of ḥajra, meaning prohibition, the word may be hajara, meaning stone. The latter would render the meaning of the expression as “there is nothing comparable to them,” as opposed to the former, “prohibition does not extend to them.” Although, linguistically, both meanings will fit correctly in the passage, but the case of prohibition appears stronger from the immediate context. Given that he follows the remark by saying that the conclusions of astronomy are not objects of beliefs, nor are they subject to affirmation or negation,

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86 Ibid., vol 7., 109. I have mainly followed Sabra in the translation of this passage.

87 Sabra and Ragep have translated it as “prohibition,” but İhsan Fazlioğlu in his recent study has made a case for translating it as otherwise. In a personal communication, Ragep has pointed that he now agrees with the rendering of Fazlioğlu, and that he was incorrect in his earlier interpretation. İhsan Fazlioğlu provides the following reason for not interpreting it as religious prohibition: “It is worth noting İjī’s use of the word i’tiqād, which we have translated as conviction. I’tiqād would normally mean religious belief. But here İjī most likely uses it to mean the content that an affirmative proposition points to; indeed, in the classical tradition of philosophy in Islam, knowledge is referred to as certain belief pertaining to reality [al-i’tiqād al-jāzim al-mutābiq li-al-wāqi’]. This interpretation is further strengthened by İjī’s insistence that “they are not subject to affirmation and refutation,” which would not be the case if İjī were thinking of religious belief.” See İhsan Fazlioğlu, “Between Reality and Mentality,” 6. Although I agree with Fazlioğlu that the word al-i’tiqād can sometimes in a secondary sense be used to refer to knowledge (iṭīf), I do not see a sufficient reason why the primary sense of the word (as a belief that pertains to religious matters) should be discarded in this case. If the claim is that only knowledge involves a propositional content that can be affirmed or negated, then that is surely not true; a religious belief also involves affirming or negating a proposition. See also main text where I provide further positive reasons for interpreting the phrase as “prohibition.”
both points clearly serve as a continuation of the previous sentence in offering a reason why a prohibition or judgment would not extend to them. In fact, the word *iʿtiqād* (certain belief) is also instructive, for when used in its primary meaning of religious belief, it would strengthen the import of the statement that religious prohibition does not extend to the conclusions since they are not related to religious beliefs at all.\(^8\) The strongest evidence that Ījī intends prohibition, however, comes in the form of his commentator, Jurjānī, who not only interprets it to mean prohibition, but also adds that it is a prohibition with regards to religious law (*al-sharʿ*).\(^9\) As such, it is safe to assume that those reading Ījī in his own context took him to mean that religious prohibition does not extend to the conclusions of astronomy.

Moreover, it will be instructive to mention that in addition to Ījī’s many other accomplishments, which included being a renowned theologian and a teacher, he also served as a distinguished *qāḍī* (judge) in Shīrāz.\(^9\) It is then highly plausible that, adjudicating as a *qāḍī*, he is offering here a religious verdict (*fatwā*) on the status of

\(^8\) It is worth adding that Ījī begins his *kalām* work by stating that the purpose of *kalām* is “to establish religious beliefs (*al-iʿtiqād al-dīniyya*) by means of arguments and by rebutting doubts” (*Mawāqif*, vol. 1, 40). This reinforces the above interpretation which sees Ījī as primarily offering here a *clarification* and *justification* for his rather extended inclusion of astronomy in what is otherwise a self-avowedly theological work. He can be seen as *clarifying* that, although *kalām* is about *al-iʿtiqād al-dīniyya* (religious beliefs), the set of astronomical propositions that he is discussing here are an exception; they should not be treated as “objects of religious beliefs,” “nor are they subject to affirmation or negation” based on religious grounds. And he can precisely be seen as *justifying* his inclusion in this work by pointing that they have been mentioned only so that “one knows the intention of the astronomers” and is “not frightened by their high-sounding words.”


astronomy to his students, which is precisely that religious law does not extend to its conclusions, for they are not related to religious beliefs. But one can then potentially question Ījī, if they are unrelated to religious beliefs why does he include them in this work that he clearly sets out to be an exposition of religious doctrine? Ījī’s following remarks make fair sense as an answer to this question. By explaining the conclusions of astronomy, Ījī seeks to reveal the intentions of the astronomers and, in particular, show that they are just high-sounding words that do not relate to reality at all, and for that reason ought not to frighten anyone among the religious circles who are not acquainted with the discipline.

If this interpretation of astronomy as a science which is not prohibited on religious grounds is accurate, the historical significance of Ījī’s comments is markedly increased. Ījī can plausibly be viewed as responding against an outlook to astronomy which would have sought to condemn or censure astronomy on religious grounds. It is unclear how common such an attitude would be among religious circles, or if it is simply a case of a straw man position; nevertheless it does provide a clarification of the Ash’arite religious stance against a rather drastic position which may have sought to

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91 Here one can draw parallels with Ghazālī’s Tahāfut al-Falāsifa. Ghazālī (also a notable jurist), at the end of his work, after analyzing the doctrines of the philosophers, responds to an anonymous questionnaire asking for a legal advice (iftā’) concerning a person who believes in the doctrines of the philosophers. Ghazālī replies by providing a legal verdict (fatwā) that branding the philosophers with unbelief (kufr) is inevitable due to three doctrines which are in violent opposition to Islam. See the concluding, page-long chapter (“Conclusion”) in Ghazālī, Tahāfut al-Falāsifa. See also Frank Griffel, Ghazali’s Philosophical Theology, 101-2 (Al-Ghazālī’s fatwā against Three Teachings of the falāsifa).
condemn the ancient sciences entirely.92 Finally, even while much more research needs to be undertaken in the immediate context that informs Ījī, recent scholarship has already established that such a clarification by Ījī will be entirely in line with, and would rather be a continuation of, the thinking among the philosophizing Ashʿarī theologians such as Ghazālī and Rāzī.93

The passage is also of considerable intrinsic philosophical interest. When Ījī considers that the conclusions of astronomy are, “conjectural things that have no existence in the external world,” and are, “mere imaginings which are more tenuous than a spider’s web,” it becomes clear that astronomical hypotheses are not to be interpreted as descriptions of the constitution of the universe. As a contemporary author puts it, rightly understood, they are not descriptions at all, and, therefore, are “not properly held to be true or false according to the success or failure in portraying the constitution of the universe.”94 In other words, Ījī can be seen to be arguing what came to be known as the instrumentalist view of astronomy, which interprets the astronomical hypotheses as devices proposed for the sole purpose of “saving the

92 In this context, it is worth pointing that in the post-classical Islamic intellectual history there did exist an intellectual current that opposed not just falsafa but also the turn towards philosophical kalām in the Ashʿarī thinkers. See Jalāl al-Dīn al-Suyūṭī, Šawn al-Mantiq waʾl-Kalām ‘an Fann al-Mantiq waʾl-Kalām, bound in one volume with his abridgment of Taqiyy al-Dīn ibn Taymiyya, Naṣīḥa Ahl al-Īmān fī Radd ‘alā Mantiq al-Yūnān, ed. ʿAlī Shāmī al-Nashshar (Cairo, 1947).

93 See footnote 68 above. Cf. Ragep, “Freeing Astronomy from Philosophy,” 50. A fuller study on the background informing the writing of Mawāqif would also have to take into consideration the context of Ījī within the Īlkhānid court, and in particular rivalries in which people like Quṭb al-Dīn al-Shīrāzī and his students advocated a strong, pro-mathematical science position. See İhsān Fazlıoğlu, “Between Reality and Mentality,” 5-9.

94 See Nicholas Jardine, “The Forging of Modern Realism,” 144.
phenomena,” to be “assessed according to their usefulness in systematizing and predicting the apparent positions and motions of the heavenly bodies.”

This portrayal of astronomy suggests an important point about Ījī’s conception of reality and truth that is specific to the immediate discussion. Reality is to be taken as the external world (al-*khārij*) which is juxtaposed and opposed to the conjectural and imaginary objects in the mind. Accordingly, astronomical hypotheses, insofar as they are taken as merely imaginary or conjectural, have no contact with the external world, and so are unreal. Given that truth is standardly defined as a relation of conformity with reality, the import of the conception of reality is fairly clear. Truth is to be taken as comprising of a relation of conformity with the external world; if there is no such conformity, the judgment is false. Given that astronomical conclusions are taken to have no contact with the external world, the qualification of truth or falsity does not, properly speaking, apply to them. In general, the conception of reality and truth portrayed here is taken to possess a rather strong metaphysical component in the form of existence in the extra-mental world. Elsewhere, however, Ījī recognizes that universal judgments like the one encountered in arithmetic and geometry are true (*haqīqī*) despite being mental. It is precisely this refusal to treat astronomical judgments in a manner similar to that of arithmetic judgments that will be questioned by Jurjānī, and,

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96 See, e.g., his discussion on mental existence in chapter three.
eventually, be utilized by him to argue for the reality and truth of astronomical judgments.

4.5 Jurjānī’s Conception of the Mathematical Sciences

4.5.1 General Overview

Jurjānī presents his view of the mathematical sciences in the form of several typically compact discussions that spread across his various philosophical-theological works. In addition to his specific responses to the two positions outlined above, he provides a significant commentary on the section of continuous and discrete quantity in Ījī’s *Mawāqif*, and also offers several short valuable remarks that relate to different aspects of mathematics in the same two commentaries as well as in his other two main works, *Ḥāshiya ‘alā Sharḥ Maṭāli’* and *Ḥāshiya ‘alā Sharḥ Tajrīd*.

Let us start by considering his general remarks on the value of mathematical sciences. In the section on bodies in *Mawāqif*, Ījī repeats the classical philosophical topos of mathematics as an “instructional” (*taʿlīmi*) and “training” (*riyāḍī*) science, which is named as such for the philosophers seek to begin their studies (*taʿlīm*) with it.97 Jurjānī adds that the discipline also serves as a training exercise for one beginning his pursuit of the philosophical sciences. He then turns to the reason why it is so useful to begin with

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97 Ījī, *Mawāqif*, vol. 6, 302. *Taʿlimī* comes from Greek μάθημα (*mathēma*), meaning “subject of instruction.”
the mathematical sciences, highlighting (expounding on Ījī) the well-ordered nature of
the discipline and the certainty of its conclusions:

“[They begin with mathematics in their instruction] because it is
the easiest to grasp since its sciences are well-ordered and
arranged and the intellect does not contend with conjectures
(wahm) in it. Instead, the sciences conform to the intellect. There
is no error in these sciences at all. And differences in it which are
rare only arise on account of words and the failure to understand
their appropriate meanings. There is no doubt that what is most
preferable and excellent in studies is to begin with what is easier
and nearer to the intellect so that the intellect can avoid fatigue.
Rather it can be strengthened into perceiving those things that are
difficult for indeed understanding is the nourishment of the soul.
Its proofs (dalāʾil) also are certain which provide the soul, when it
is prepared by it, an aptitude (malaka) such that in perceiving
things it only leads to certainty. In fact, if there is any possibility
here to acquire certainty (yaqīn), it is in this science. And where it
is not possible, like the sciences of probability (al-ʿulūm al-
ẓanniyya), one can [only] strive to attain a preponderant
probability (al-zann al-aqwā) since that is closest to what they can
prepare.”

The above passage is significant for another reason, namely Jurjānī’s greater
confidence in the mathematical sciences than natural philosophy and metaphysics. For
it is evident that what he has in mind by the sciences of probability (al-ʿulūm al-
ẓanniyya) are the latter two sciences, whose proofs he points can provide preponderant
probability, in contrast to the proofs of mathematics which can offer certainty. The
same idea is conveyed more clearly in Ḥāshiya ʿalā Sharḥ Maṭāliʿ al-Anwār, where he
explicitly says that, “unlike natural philosophy (al-ṭabīʿīyyāt) and metaphysics (al-

98 Ibid.
ilāhiyyāt), where there are errors,” mathematical sciences, such as geometry, are “well-arranged and ordered (muntaẓim), inclining individual minds towards them without any difficulty.” Furthermore, this, he claims, is precisely the reason why logic, as a protective canon, is needed in natural philosophy and metaphysics, but is not required in mathematics, or more precisely, arithmetic and geometry, for the latter’s conclusions, unlike the former two, can be immediately and easily grasped without any errors.

Concerning the reason why conclusions of arithmetic and geometry can be easily grasped without any errors, he writes:

“The reason for this is that the first principles of these sciences are self-evident (badīha) and clear (ẓāhira), and are appropriate to their problems which are near to them. Errors do not occur in them in terms of affirming them due to their self-immediacy, rather their primitivity (awwaliyya), nor do they occur on account of them being principles for those problems. The same is the case in the doctrines (masā’il) of these sciences when they become principles


100 Ibid. This greater assurance about the mathematical sciences than natural philosophy and metaphysics is, of course, not novel with Jurjānī. One might compare this with what Ptolemy says in the introduction to the Almagest, calling natural philosophy and metaphysics as “guesswork” than knowledge, and upholding only mathematics as the route towards “sure and unshakeable knowledge.” See Ptolemy, Ptolemy’s Almagest, trans. G. Toomer, 36: “From all this we concluded: that the first two divisions of theoretical philosophy should rather be called guesswork than knowledge, theology because of its completely invisible and ungraspable nature, physics because of the unstable and unclear nature of matter; hence there is no hope that philosophers will ever be agreed about them; and that only mathematics can provide sure and unshakeable knowledge to its devotees, provided one approaches it rigorously. For its kind of proof proceeds by indisputable methods, namely arithmetic and geometry.”

of other doctrines. Since they are certain without any doubt and appropriate to those other doctrines near to it. The same is the case in problems distant from the first principles. The sequence that occurs in the principles of these sciences, whether near or distant, is self-evidently conclusive (badihat al-intaj). There is no need for a protective canon in order to acquire correct notions in it, neither for the matter of the notion, nor for its form. All one requires is to prevent any mistake in the conception of the conventional meaning, and if that is achieved one knows without any difficulty. “101

Jurjani continues that the canonical rules of logic (al-qawānīn al-mantiqiyya) are needed when one proceeds from these principles to inquire into the specific and particular problems, but insofar as the principles themselves are concerned they do not require logic for they are immediate and self-evident. Arithmetic and geometry, he concludes, comprise such principles and, for this reason, the ancients began with them in their studies.102

In the course of the discussion, he also provides the distinction that sets logical rules apart from the rules of geometry and arithmetic.103 The distinction is the same that sets Arabic grammar apart from logic. Despite being a canonical and instrumental science like logic, grammar, however, does not convey knowledge of the way one moves from knowns to unknowns, which is what logic conveys. Instead, universal principles are enunciated in grammar that relate to the conditions of articulating the Arabic language upon a particular manner. And when one intends to articulate a particular expression in

101 Ibid.
102 Ibid., 54-55.
103 Ibid., 51.
the correct manner, one depends on the particular judgments which are in turn extracted from those principles. The same is the case, Jurjānī continues, in geometry.\textsuperscript{104} The conclusions of geometry are canonical and serve as the principles of proofs which, in turn, conduce to the discussions of shapes and configurations. Geometry provides the principles of proofs, but not the particular notions (fīkr) that occur in the proofs.

Finally, he explains elsewhere that the judgments of geometry and arithmetic possess this universal and certain character because they refer to a particular type of judgment, which is called \textit{ḥaqīqī}.\textsuperscript{105} A \textit{ḥaqīqī} proposition is one where the judgment applies to all its individuals in \textit{nafs al-amr} in accordance with the meaning, and irrespective whether the individuals have external existence or not. He distinguishes it from \textit{kharījī} propositions where the judgment applies to the individuals in the external reality only. Insofar as the judgment in such propositions applies to all individuals of its class whether the individual is existing or not, they provide universal concepts and so are real propositions. More specifically, such propositions provide judgments that are the “necessary attributes of their quiddities” (\textit{lawāzim al-māhiyyāt}).\textsuperscript{106} That is to say, the judgments proceed from mathematical objects irrespective of whether the objects have existence or not. This then is precisely the reason why geometrical and arithmetical objects (like numbers, shapes and equations), while admittedly not able to exist in

\textsuperscript{104} Ibid.

\textsuperscript{105} See \textit{Sharḥ al-Mawāqif}, vol. 2, 179-180 (used as part of one of the proofs for the establishment of mental existence); and also Jurjānī, \textit{Ḥāshiya Sharḥ Tajrīd}, ed. Ḥūriyya Shujāʿī Bāghīnī (Qum, 1379), 85-6 (again, utilized to establish mental existence).

\textsuperscript{106} Jurjānī, \textit{Ḥāshiya Sharḥ Tajrīd}, 86.
experience except as a property of some particular thing, nevertheless can be correctly imagined in the abstract, separate from any particular thing.

One can summarize and assess the main points from the above passages. Conclusions of geometry and arithmetic are taken to be certain and do not require the application of logic, unlike those of metaphysics and natural philosophy which, being liable to error, require it. This follows from the fact that geometry and arithmetic provide principles, which are self-evident, immediate and primary. Insofar as these principles are also canonical and universal, they serve as principles of proofs, and it is by the mediacy of proofs that they eventually lead to particular and specific discussions and problems. It is already worth noting from the exposition so far that Jurjānī does not consider mathematical sciences to be inferior compared to natural philosophy and metaphysics. On a number of counts it is actually viewed superior to the two sciences. First, its conclusions are certain and devoid of error. Second, it is not dependent on logic. Third, the deliverances of mathematical sciences are principles which are self-evident and immediate, and which function as canonical and universal rules to formulate proofs that, in turn, can be utilized in specific discussions. Fourth, and finally, the ontological status of judgment of arithmetic and geometry is that, being ḥaqīqī, they are in fact necessary attributes of their mathematical objects. Jurjānī, as we shall see, will deploy and extend this conception of mathematical sciences in his responses to the skeptical positions.
4.5.2 Continuous and Discrete Quantity

The concept of quantity and its division provides an important context for Jurjānī’s view on the status of mathematical objects. It provides a setting to see the manner in which Jurjānī, on his more considered and careful examination, favors the position of the mutakallimūn against the philosophers. The basic outline of the doctrine of quantity is the same in his three main works – commentary on the Mawāqif, a gloss on the commentary on the Hikmat al-‘Ayn, and a gloss on the commentary on the Tajrīd al-‘itiqād – which repeat the classical formula of its division into continuous and discrete quantity. But it is on the finer issues pertaining to the existence of numbers (ʿadad) and measure (miqdār, or magnitude) where Jurjānī, in line with the mutakallimūn, questions the philosophers’ arguments which attempt to affirm their external existence. Jurjānī’s considered views on the status of numbers and measure are presented most fully in his commentary on the Mawāqif; following Īji, he goes to some length here in clarifying and extending the position of the mutakallimūn who seek to reject the external existence of numbers and measure. But even in his gloss to the philosophically-predisposed work of Hikmat al-‘ayn, Jurjānī indicates towards an objection against the philosophers’ view.

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107 Sharḥ al-Mawāqif, vol. 5, 62-5 (presented by Īji and commentated by Jurjānī); Ḥāshiya ʿalā Sharḥ Hikmat al-‘ayn, 154-55; Ḥāshiya ʿalā Tajrīd al-ʿaqāíd, MS Majlis Shūra Millī 5685, 167b-168a (Jurjānī’s gloss appears on the side margin in this work). Although Jurjānī’s gloss in the latter two are sporadic in the section, meant mostly as clarification, but the standard view of quantity, its defining quality and its division, is repeated in the commentaries).
Let us begin with the basic outline that is common to all three works, relying on the articulation found in \textit{Sharḥ al-Mawāqif}.\textsuperscript{108} Quantity (\textit{kamm}) divides into continuous and discrete depending on whether one can assume that its parts share a common limit or not. In a continuous quantity, one can assume parts that conjoin at a single limit which is common between the two parts. The common limit is the position between the two parts such that the end of one part is identical to the beginning of the other part (or the ending of both parts is the same and likewise other combinations). Thus, the common limit in the division of a line is a point, of a plane is a line, and of a body is plane. If no common limit can be supposed between the parts, it is called discrete quantity, for instance, numbers.

Continuous quantity is either successive (in essence), that is, it is not possible to join its supposed parts in existence. This is called time (\textit{zamān}). Since the present moment is common to both past and future, it will be a continuous quantity. Alternatively, continuous quantity may be simultaneous (in essence) (\textit{qarr al-dhāt}), that is, it is possible to gather its supposed parts in existence. This is called measure (\textit{miqdār}, or magnitude). One can further divide measure either in three directions (\textit{jihāt}), which is called mathematical body and which is the most complete body, or in two directions only, which gives a plane, or in only one direction, which gives a line. In summary, these are the four types of continuous quantity.

\textsuperscript{108} \textit{Sharḥ al-Mawāqif}, vol. 5, 62-5.
Discrete quantity is number only. This is because the subsistence of the discrete is due to different objects, which in turn are singulars, which in turn are the units. Moreover, a unit is extracted either in terms that it is a unit without considering another thing with it, in which case it is called a quantity, in essence. The example is like, say, the number four when it is conceived as simply the number four. On the other hand, a unit may be extracted from the fact of a singular particular thing which is qualified with it. Such a unit is called quantity only accidentally. The example will be the number four given in the situation of, say, four books. It is the former quantity that is treated as one of the canonical categories, and forms the subject of philosophy.

4.5.3 Ontology of Numbers and Measure (miqdār)

Up till now the discussion has been standard. At Section 5 in the chapter on quantity, Ījī turns to the question of the status of numbers.109 Do numbers have a separate existence in the external world other than the individual objects they qualify or not? Ījī distinguishes between the position of the philosophers, whom he attributes with affirming existence, and of the mutakallimūn, who deny it. He then proceeds to argue for the position of the mutakallimūn. Jurjānī follows Ījī in rejecting existence, and, in the course of the discussion, offers important clarifications of intrinsic philosophical interest.

109 Ibid., 70-6.
The gist of the argument is that numbers are composed of units (waḥda), and a unit has no existence.\textsuperscript{110} Since the absence of part necessitates the absence of whole, therefore numbers will have no existence. The argument, of course, relies on the assumption of the non-existence of unity. Ījī vindicates the assumption by arguing that if unity exists, then it will have its own unity, which would necessitate an infinite regression of units sequentially existing together, which is impossible. Philosophers object to this reasoning on two counts, but Jurjānī shows that both objections can be refuted. Unity, he states, is a mentally-posited entity (amr ḍībārī).\textsuperscript{111}

Ījī goes on to rebut an alternative understanding of unity proffered by the opponents. He narrates that some have tried to understand the unit differently as a single entity, which is obtained by means of aggregation (ijtimā‘) and union (ittiṣāl). Upon this meaning, they hold unity to be the same as aggregation and union, which in turn are assumed to be existents. Drawing on Ījī, Jurjānī offers his distinctive response based on two points. First, he considers that it is not necessary to grant that aggregate and union are both existents since they can simply be non-existing attributes which happen to qualify an existing body. The situation may parallel that of blindness, which is a non-existing attribute, qualifying a blind man in the external world.\textsuperscript{112} Second, Jurjānī replies that, even if one were to grant them the status of existents, we can still say that

\textsuperscript{110} Ibid., 70.
\textsuperscript{111} Ibid., 72.
\textsuperscript{112} Ibid., 74.
both are not the same as unity, rather they are simply the causes for the occurrence of a unity, which itself is a mentally-posited entity. By either means, the objection can be easily removed.113

The context for the final remarks is a rejection of the view of Ibn Sīnā. Jurjānī first summarizes Ibn Sīnā’s view, which held that number has two kinds of existence, namely, mental and extra-mental (or material).114 In the event that one conceives of numbers abstracted from any external objects, numbers only have mental existence. However, when one numbers external objects, number occurs as a separate and single entity that stands with the object, and indeed has extra-mental existence.115

Ījī rebuts the view by pointing to a crack in reasoning: a single entity that stands with an externally existing numbered object does not necessarily have to be externally existent itself.116 Instead, he then offers two neat examples to prove that a number is rather a mental consideration.117 Consider the concept of, say, two that is derived by considering two objects where one exists and the other does not. In this case, the concept of two does not correspond to any singular entity having external existence. Consider, likewise, the concept of two that is understood by observing two persons, one is present in the east and other in the west. The concept qualifies the two individuals,

113 Ibid.
114 Ibid., 74-5.
115 This should not be construed as some kind of Platonic/Pythagorean idea. Instead, the key point is that, for Ibn Sīnā, number construed as an accident of quantity subsists in a substance.
116 Ibid., 75.
117 Ibid.
but does not exist as a singular entity in the world. To this Jurjānī adds that the concept is actually a mentally-posited and assumed entity (*amrun fardiyyun wa 'tibāriyyun*). This is despite the fact, he continues, that it qualifies objects in the external world, since “it is permissible to qualify concrete external objects with mentally-posited entities.”

Jurjānī concludes the section with an important assessment. Although there is no doubt that numbers can qualify concrete individual objects, however the claim that a number qualifying a concrete object has external existence is one which is doubtful. So is the claim that a unity qualifying a concrete object has external existence.

In the same vein, having refuted the external existence of numbers, Ījī turns in the next section to reject, contra philosophers, the existence of measure (or continuous quantity such as lines, planes and bodies) in the external world. Having already seen Ījī’s argument, the point worth mentioning is that Jurjānī fully develops and clarifies the condensed reasoning of Ījī, and concludes, like Ījī, that the dispute ultimately stems from the philosophers’ rejection of a more fundamental doctrine of body being composed of smallest, indivisible parts. The same point is made in his gloss to the *Ḥikmat al-ʿayn* where, in response to the proof philosophers proffer to establish external existence of measure, he counters by citing the author of *Sharḥ al-Mulakhkhas* (probably referring to

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118 Ibid., 75-6. On the importance of this principle, namely, it is permissible to qualify concrete external objects with mentally-posited entities, see chapter three.

119 Ibid., 76. “Indeed, there is no doubt (*shakk*) in the attribution of numbers to the concrete things (*al-aʿyān*). However, as for the number, accidental (*al-ʿārid*) to the concrete things, being an existent in the external world, this is from the matter which is not doubt free. Likewise, the same situation applies to the unity (*wahda*) accidental to the concrete existing thing.”

120 Ibid., 76-80.
Kātibī, who wrote a commentary on Rāzī’s *Mulakhkhas*\(^{121}\) that, “this proof is only complete if [the view of] a part not being the smallest indivisible unit is correct” (emphasis added).\(^{122}\) The implication seems clear; their proof for the external existence of measure returns to their rejection of the smallest indivisible units, but this rejection, presumably, as we saw earlier, is debatable.

The above presentation reveals something important about the ontological status of numbers and measure for Jurjānī. First, it is important to emphasize that, as opposed to other places where he offers remarks indirectly touching on this ontological issue, he is providing here one of his more thorough, focused, and careful examinations of the specific issue. This distinction between his general and more considered remarks will become important, as we will see below, in resolving what may initially appear as inconsistencies in his statements. Second, in the present context of a careful evaluation of the ontological status, he raises objections against the philosophers’ position which holds that numbers and measure can be found in sensible objects or that they have an external existence in the world. Instead, in line with Ījī and other *mutakallimūn*, he favorably presents the position that they are non-existent, meaning thereby that they are not endowed with individual existence in the material world. They are, rather, (as he calls) *iʿtibārī* or mentally-posited concepts. Equally important, he is also saying that numbers can and do qualify external objects, which suggests that one should not

\(^{121}\) I have not been able to identify which Sharḥ is intended here.

\(^{122}\) Jurjānī, Ḥāshiya ʿalā Sharḥ Ḥikmat al-ʿayn, 153.
overlook their contact with the real. They are non-existing attributes of a real subject, and in this sense have a foundation in reality. And though this foundation is “remote and mediate,” it is real nonetheless.\textsuperscript{123} It is this latter point, or rather its conceptual elaboration, which Jurjānī will go on to use as a bulwark against the view that completely downgrades the import of the mathematical sciences.

4.5.4 Rebuttal of the Philosophically-Motivated Skeptical Argument

Let us return to the philosophically-motivated skeptical remark of Ibn Mubārakshāh al-Bukhārī against the mathematical sciences. It stated that because the majority of the mathematical sciences is based on conjectural and mental entities while the most important task is to study individually existing things, the author (i.e., Kātībī) has stayed away from examining them in his book.\textsuperscript{124} Jurjānī counters this skeptical view of the mathematical sciences in a reply that is of considerable philosophical interest.

“There is discussion in this because if the intention is that its problems (\textit{masā’il}) in itself are conjectural entities (\textit{al-
\textit{umūr al-
\textit{mawhūma}), as the author has taken it to mean, then that is not the case. Instead, the objective of those conjectural entities is to know the conditions of existing things (\textit{al-
\textit{mawjūdāt}). For example, equators (\textit{al-
\textit{manāṭiq}) are assumed (\textit{al-
\textit{mafrūḍa}) in order that one knows the positions of the orb and what their movements are like. It is from the divisions of philosophy (\textit{al-
\textit{ḥikma}) which studies the conditions of existing things. If one interprets it to mean that its proofs are dependent upon conjectural entities, despite that the apparent expression does not reflect [this meaning], then this

\textsuperscript{123} See Robert W. Schmidt, \textit{The Domain of Logic According to Saint Thomas Aquinas}; and above, ch. 3, n. 108.

\textsuperscript{124} \textit{Sharḥ Ḥikmat al-
\textit{ʻayn}, 6.
actually indicates their strength (wathāqa) in aiding the estimative intellect (al-ʿaql al-wahm) in its principles.”¹²⁵

The main component of Jurjānī’s rebuttal of the skeptical argument is that although mathematical thinking may employ imaginary objects, the conclusions of its sciences are not conjectural or imaginary. Rather, they tell us the conditions of concrete objects existing in the world. His example of equator illustrates this point rather well insofar as they are circles that are assumed, yet allow one to know the real positions and motions of the orbs. The position he particularly wishes to distance himself from is one that views mathematics as simply a study of conjectural objects that have no existence in the external world. On the contrary, he deems that mathematics studies the conditions of existing things. Herein, then, lies precisely Jurjānī’s radical departure from the then prevalent conception of the mathematical sciences. Far from being an abstractive science that has no contact with the real world, mathematical sciences, in the vocabulary of Jurjānī, are firmly grounded in reality and thereby share the role with other branches of philosophy, like metaphysics and natural philosophy, in uncovering that reality.

Having argued that mathematics also studies individual concrete things, he turns to the question which puzzled the commentator, Bukhārī, of why the author did not discuss the mathematical sciences in his work. Jurjānī flatly rejects Bukhārī’s interpretation that the reason lies in mathematics’ inability to deal with the important

¹²⁵ Ibid.
task which is a study of the existing things. Pressed to explain the omission, Jurjānī goes on to offer what he thinks may be a more desirable reason which can be attributed to the author.

“It should be known that we do not accept his reason that the important thing is to study individually existing things. At best, it can be said that the subject of some divisions of mathematics is conjectural entities, such as certain shapes which are assumed that do not exist in the external reality. Accordingly, what is preferable is that it is said that he [i.e., Kātibī] has avoided examining mathematics because its being (kawn), which is obtained from the faculty of imagination (malakat al-takhayyul), is in competition for the perfection of that which is prepared by it (al-mu’tadd bihī), meaning the thing that intellectualizes (al-muta’aqqal).”

This remark is far from clear. In general, the idea seems to be that mathematical thinking originates from the faculty of imagination (takhayyul) which seeks to prepare the soul with a capacity to intellectualize things. However, in this task of preparing the soul, mathematical sciences, which are linked with the imagination, are rivaled by natural philosophy and metaphysics, which seek to provide knowledge by means of the intellect. In the Avicennian framework, the ability to perceive things based on the power of intellect was considered superior to that which was rather based on imagination. Accordingly, metaphysics and natural philosophy may have been thought to have some edge over the mathematical sciences. Regardless of whether Kātibī was actually motivated by the reason Jurjānī is positing here or not, it is crucial to note that even though Jurjānī is suggesting it as the more plausible reason compared to others,

\[126\] Ibid.
nowhere in his remark does he explicitly admit the second-rate status of mathematics. Rather he leaves the issue as simply a competition among the theoretical sciences for the perfection of the soul.

If this interpretation is correct, the positive and confident image of mathematical sciences is greatly enhanced. There is no neat argument that mathematics is inferior to the other two theoretical sciences. Just as the other two sciences inquire about the existing things in the real world, so does mathematics. And, just like they seek to perfect the soul in the task of intellectualizing, mathematical sciences also seek to perform the same task and may not necessarily be inferior in their ability to do so.

There is one final and clarifying remark Jurjānī makes before he concludes his response to this skeptical position. Some may wonder about the precise distinction between natural philosophy and metaphysics, on one hand, and mathematical sciences, on the other, given that many of the discussions in the former two also focus on non-existing and mental concepts, for instance, necessity and possibility. Jurjānī addresses this confusion by pointing out that although the two sciences share with mathematics in inquiring into mental concepts, the type of mental concepts treated in them is fundamentally different than that examined in mathematics.

“If it is said that many of the things one studies even in the two sciences [i.e., metaphysics and natural philosophy] are also mentally-posed entities (al-umūr al-iʿtiṣāriyya), for example, necessity and possibility, I will reply that these mentally-posed
entities characterize something in *nafs al-amr*, as opposed to the circles and axes which one studies in astronomy.”

I interpret the key claim of this obscure remark to be that the distinction in the two kinds of mental objects is between a mental object that qualifies something in *nafs al-amr* and one which qualifies something in the external world. Necessity and possibility are predicates (more accurately, properties indicated by the predicate concept) that qualify their subject in themselves, that is to say, irrespective of whether their subjects have existence or not. Simply put, they are mental predicates-properties that qualify an object regardless of whether the object itself is mental or extra-mental. On the other hand, the circles one studies in astronomy are properties that are extracted from a concretely existing fact in the form of a body or an observed situation. But this very fact tells us that the property-predicate is characterizing something in the external world. In other words, they are mental properties-predicates that qualify a concretely existing object.

While Jurjânî’s above remark is admittedly unclear, it is, I think, critical for the evaluation of Jurjânî’s view of mathematical objects. Fortunately, there is a passage in another work in which Jurjânî makes his point far more clearly. That passage

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127 Ibid.


129 Certain stylistic elements in the prose of the preceding two lines are from Jardine, “The Forging of Modern Realism,” 164.
constitutes his response against the theologically-motivated skeptical view of Ījī concerning geometrical objects.

**4.5.5 Response to Ījī’s Skeptical Argument Against Geometry**

Ījī’s skeptical view of geometrical objects had three parts: 1) that objects are conjectural entities; 2) one does not know their existence externally; and 3) based upon these entities is the philosophers’ science in which they claim certainty. Jurjānī counters with a forceful reply.

“One may say: The proofs for their existence have been furnished at their places. Even if one grants that they are conjectural entities (*umūr wahmiyya*), this still does not negate their judgments (*akhām*) being certain. Don’t you see that a number that is composed of units which are mentally-posited things (*umūr iʿtibāriyya*) possesses judgments that are undoubtedly true, and whoever denies their certainty is just being [arrogantly] stubborn (*kābara*). This is likewise the case in geometrical studies as those who deal with them know. If it is said: there is no completeness (*kamāl*) in knowing the conditions of conjectural entities (*al-mawahhumāt*), we shall reply: conjectural entities can be an accident (*ʿāriḍa*) in *nafs al-amr* to the concretely existing things (*al-ʿayān al-mawjūda*). Accordingly, because of this reason, judgments are attained for those concrete things that conform to reality (*al-wāqiʿ*). One can infer the conditions of concrete entities by means of judgments of conjectural entities. None of this is unfamiliar to someone who is aware of the demonstrative proofs of astronomy based upon arithmetic and geometry.”\(^{130}\)

Jurjānī’s rebuttal of the skeptical argument from conjectural entities has two main components. The first, merely adumbrated in the opening line, is a claim towards which he simply hand waves without providing any further explanation: that

\(^{130}\) *Sharḥ al-Mawāqif*, vol. 6, 165.
geometrical objects (such as lines, planes and bodies) are not conjectural entities but possess external existence whose proof has been given at their rightful place. This, of course, is the claim of the philosophers who argue, contra mutakallimūn, for the existence of continuous quantity (or measure) in the external world. As such, it leads to the question of an apparent inconsistency between this claim and Jurjānī’s considered remarks seen earlier where he criticized the philosophers’ position of external existence. However, I think this question is not as pressing as it may initially appear. One way this seeming inconsistency can be removed is to view it as simply another instance of his usual practice where he can generally utilize the conventional, philosophical position in general discussions (i.e., accepting external existence of mathematical figures), but departs from that position based on his more considered and careful examination. As seen in chapter three, this distinction between his general and considered (taḥqīqī) view, in fact, features in his understanding about some philosophical issues, such as the problem of universals, or the meaning of external and mental existence. As such, in this case, by hand waving towards the philosophers’ claim of the external existence of mathematical figures, Jurjānī is simply trying to protect the disciplinary integrity of the mathematical sciences more than anything else. At any rate, it is the next argument (the second component of his rebuttal) which accepts the conjectural (wahmī, as opposed to the externally existing) status of geometrical entities that he clearly devotes more space

131 See chapter three, footnote 51, 99, and 117, and the accompanying main text.
and thought to and which, in general, seems to provide the view he favors given that it makes clear a point that is repeated in his other writings.

The second component, which was sketched in the earlier response to Ibn Mubārakshāh al-Bukhārī and more fully developed here, may be dubbed as “the argument from the certainty of arithmetic.”

It starts by showing that judgments of conjectural objects can still be certain as is evidenced in the case of judgments of arithmetic which are indisputably certain despite the fact that numbers are mentally-posed objects. By an appeal to a familiarity with the science of geometry, it argues that the latter shares this feature with arithmetic.

Having established by way of familiarity that the judgments of arithmetic and geometry despite being of conjectural objects are still certain, Jurjānī proceeds to explain the reason behind it. The crucial sentence is, “Conjectural entities (al-mawhūmāt) can be an accident (ʿāriḍa) in nafs al-amr to the concretely existing things (al-ʿyān al-mawjūdāt).” This remark is particularly significant for understanding Jurjānī’s view on the ontological status of geometrical objects.

The first point to note is that geometrical objects (like circles, etc.) are taken as conjectural entities (mawhūmāt), as opposed to externally existing entities. This means that they are not endowed with concrete existence in the external world. In other

\[\text{132} \text{ Cf. Jardine, “The Forging of Modern Realism,” 165 (who reconstructs, similarly, what he sees as two arguments in Kepler’s rebuttal against the skeptics: “the argument from sufficiency of evidence,” and “the argument from common ground”).}\]

\[\text{133} \text{ Sharḥ al-Mawāqif, vol. 6, 165.}\]
words, they are not like a property (or quality) indicated by the concepts such as “man” or “horse” or “whiteness.” On the contrary, they are mentally posited entities (iʿtibārī). However, what Jurjānī crucially emphasizes in this statement is that, as mental entities, they are, importantly, not sheer nothing. He does this by highlighting two key aspects.

In the first clause of the remark, by taking the geometrical objects as conjectural entities that are “an accident in nafs al-amr,” Jurjānī understands geometrical objects as possessing a particularly substantial occurrence or establishment, that is, an establishment in nafs al-amr. Keeping in line with Jurjānī’s understanding of nafs al-amr as an objective realm and as a marker of truth, geometrical objects, then, are not merely mental entities; rather, they are to be construed as objective (or factual) entities. This is a key point; as objectively true entities, geometrical objects, for Jurjānī, should be distinguished from the mental, fictional entities, such as “ruby mountains” or “two-headed men.”

Moreover, in the second clause of the remark, by saying that the conjectural entities (i.e., geometrical objects) can occur to “the concretely existing things,” Jurjānī views them as a particular kind of objectively-true, mentally-posited entity. He is distinguishing them from another kind of mental property (or quality) that qualifies something having no existence in the external world. In other words, they are not like a property indicated by the concepts such as “universality” or “necessity” or “possibility,” where the predicate-quality itself is abstracted from another mental concept. Instead,  

\[134\] On Jurjānī’'s theory of truth and nafs al-amr, see ch. 3.
he understands them as an objectively-true, mentally-posited entity that qualifies an object in the external world. That is to say, they have no corresponding subsistence in the external world, but their qualification is an event in the concrete, extra-mental world.\textsuperscript{135} And insofar as their qualification is a real external fact, one can, by means of their judgments, actually know the conditions of the concretely existing objects in the material world.

To recapitulate: for Jurjānī, a geometrical object is not merely a mental or conjectural entity. Instead, he can explicitly be seen as utilizing his deflationary, “human-centered epistemology” (based on \textit{nafs al-amr} and a rejection of the Active Intellect)\textsuperscript{136} in order to put forward a unique and a more upgraded ontological conception of geometrical objects, a conception that does not overlook their contact with the real and the true. A geometrical object, for him, is a certain kind of objectively-true, mentally-posited entity that can qualify a concrete, extra-mental object in the world, and thereby can provide judgments about that concrete, extra-mental object that conform to external reality.

As an example of the last point, Jurjānī cites astronomy whose proofs, which are based on geometry and arithmetic, can lead one to infer the conditions of the motions

\begin{footnotesize}
\textsuperscript{135} See Toshihiko Izutsu, \textit{The Fundamental Structure of Sabzawari’s Metaphysics}, 41-3.

\textsuperscript{136} See chapter three. For more context on this turn towards a more “human-centered epistemology,” see Robert Wisnovsky, “Avicenna’s Islamic Reception,” 196-7.
\end{footnotesize}
and positions of the heavenly bodies. He extends this point more clearly and fully in his direct response to the skeptical position of Ījī concerning conclusions of astronomy.

4.5.6 Response to Ījī’s Skeptical Argument Against Astronomy

In response to the skeptical remarks of Ījī concerning the conclusions of astronomy which likened them with “mere imaginings” that are “more tenuous than a spider’s web,” Jurjānī begins with a gracious, “One may say...” He then concedes that it is true that astronomers make assumptions. They assume (following Sabra’s rendering) in a sphere, points that are stationary and others moving with different speeds; they assume in a sphere circles of which some are parallel to one another and others intersecting; and they also assume in the two equators, the intersection at two points between which the distance is the greatest. However, he then proceeds to fortify the assumptions of astronomy in a much celebrated passage, by pointing out that they correspond to things in nafs al-amr and possess a certain basis in reality.

“These and their like, despite not having any existence in the external reality, are nonetheless conjectural and imaginary things (umūr mawhūma mutakhayyala) which are imagined correctly in accordance to what is in nafs al-amr, as attested by sound innate [human] nature (al-fitrā al-salīma). They are not absurd imaginings (al-mutakhayyalāt al-fāsida) such as ghoul’s fangs, ruby mountains or two-headed men. By means of these notions, the conditions of [celestial] movements are regulated in regard to slowness and fastness and direction upon a form which is perceived [directly] or observed with the aid of instruments. By means of these notions also discovery is made of the judgments (aḥkām) of the celestial

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137 Sabra, “Science and Philosophy in Medieval Islamic Theology,” 39.

138 Ibid.
orbs and the earth, and of what they reveal of subtle wisdom and wondrous creation—such that whoever apprehends them is awed with the glory of their Creator, prompting him to say: ‘Our Lord, Thou hast not created this in vain.’ This then is a valuable benefit that lies hidden in those words [of the astronomers] and that ought to be cherished, while ignoring whoever is driven to disdain them by mere prejudice. And God is from Whom assistance is sought in all circumstances.”

This is fortification, indeed! Three kinds of arguments are deployed here by Jurjānī in his rebuttal of the skeptical attitude: philosophical, practical, and theological.

The philosophical argument is based on the key premise that conjectural objects can have a certain establishment, that is, an establishment in nafs al-amr. This repeats the exact same idea seen above in his defense of geometrical objects. Here it will be useful to recall how Jurjānī understands the epistemological and ontological dimension of nafs al-amr.

According to Jurjānī, as seen in the previous chapter, nafs al-amr (in its epistemological sense) referred to what one may call the things in themselves, that is, things viewed in their primary, objective, de-facto mode of being, i.e., as naturally given, before the light of subjective analysis is shed upon them. In addition, nafs al-amr also has an ontological dimension for Jurjānī in the sense of constituting a realm where things, being in their objective, primary mode, are realized (or established). This

139 Jurjānī, Sharḥ al-Mawāqif, vol. 7, 109-110. See also Sabra (above note) whose translation I have generally followed here.


realization occurs outside the perceptual faculties, and occurs independent and prior to any ontological commitment to the mental or extra-mental existence of things or not. Indeed, this realization of objects occurs due to their meaning (or what Jurjānī calls, its own definition), which is to say, how the concepts forming the definition of the thing are logically related to each other. For example, there is a necessary concomitance between sunrise and the presence of daylight, which is realized simply through the essential definition of sunrise, inasmuch as the “presence of daylight” is logically contained in the concept of “sunrise.” Since the realization of objects in this realm involves no subjective analysis, this realm constitutes what one may call objective (or factual) reality.

The upshot of this overview is that by stating that the imaginary objects of astronomy (like circles, etc.) can have an establishment in nafs al-amr, Jurjānī grants them a claim to reality. This is not external reality, but objective reality. They also have a claim to a certain kind of establishment (or existence). This is not mental or extra-mental existence, but a more absolute and general establishment that derives from their meaning, irrespective of any ontological commitment to their existence or not. Moreover, it is worth recalling the elaborate conceptual framework Jurjānī utilizes to clarify the notion of truth. Conformity with the external world is only one criterion of truth for a specific kind of extra-mental judgment. But, when the objects are mental they can still be considered true if they conform to nafs al-amr, which forms the second criterion. The import of Jurjānī’s remark, then, is that the conclusions of astronomy, being imaginary, still have a right to truth.
Rightly understood, astronomical hypotheses are to be interpreted as possessing a distinctive establishment in *nafs al-amr*. Hence, they can properly be held to be true or false according to their success or failure in conforming to their establishment in *nafs al-amr*. This allows Jurjānī to advance his second philosophical point: it is not simply that astronomical hypotheses can be true, but they, in fact, are true, for they are imagined correctly in accordance to what things are in *nafs al-amr*. He distinguishes these from other imaginary objects such as “two-headed men” and “ruby mountains” which are not in accordance to what things are in *nafs al-amr*, and which hence are false and are, as he calls, “mere imaginings.”

Although this distinction between true and false imaginings does provide a classificatory scheme to separate mathematical objects from fictional entities, it remains unclear, given Jurjānī’s brief remarks, how would he explain the distinction in some kind of methodological way. In other words, presented with an imagining, what enables one to distinguish between a false and true imagining? The problem can, in fact, be sharpened further. It can be argued that the faculty of compositive imagination (operating, in its proper aspect, under the control of estimation, or, alternatively, in conjunction with reason) is responsible for putting together composite images.¹⁴² Now it is true that in its separating and combining difference pieces of abstracted sense data, it can give rise to such fantastical images as ruby mountains or ghoul’s fangs, but among

its roles was also mathematical thinking. Indeed, it allowed one to imagine certain shapes and figures that one then subjects to different operations such as dividing, rotating, and the like.

One may ask, then: How can the estimative faculty distinguish between true and false judgments? For instance, how does it distinguish between an epicycle and a ruby mountain? Jurjānī offers little guidance in this regard. Elsewhere, however, he does repeat the standard view: Judgments of the estimation made with respect to sensibles (as opposed to purely intelligible objects) are not only true, but can be included among the categorical premises on which demonstration is based. In his *Sharḥ al-Mawāqif*, he writes:

“The judgment of the estimation with respect to sensibles is true. For example, “each body must be to one side.” This is because the intellect is true for it in its judgments with respect to the sensibles. And due to their conformity, the sciences such as geometry are extremely clear. There hardly ever occurs in it any disagreement like that which occurs in other sciences. Contrary to this is its judgment with respect to abstract objects and purely intelligible objects. This is because when one judges them by means of judgments of sensible objects, its judgment there will be false, for instance, its judgment that, “it is necessary that every existent must be to one side or in a place.”

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144 Ibid., 116.


146 *Sharḥ al-Mawāqif*, vol. 2, 41-2.
One can take Jurjānī to be saying that sensibles provide a kind of check on the judgments of the estimation going amok, as is the case with ruby mountains or ghoul’s fangs, where there are no “sensible” checks. Moreover, while Jurjānī is insistent that the estimation plays a vital role in geometrical thinking, he also seems to imply that such thinking involves the intellect at some level.\(^{147}\) How do imagination, estimation, and intellect interact in the activity of mathematical thinking, and how do these interactions differ in the activity of fantastical imagination, however, remains unclear.

There is also a practical or utilitarian argument that Jurjānī includes in his rebuttal. By means of these imaginary notions, the seemingly haphazard and irregular motions and positions of the celestial bodies can in fact be regulated, and, moreover, the judgments of the orbs and earth can be discovered. The argument is essentially a concrete rendering of an earlier theme that one can infer the conditions of concrete entities by means of judgments of conjectural entities. Astronomical hypotheses are mental objects but qualify external realities. This quality of astronomical objects, taken together with the fact that they have an objective reality in the form of \textit{nafs al-amr}, ultimately provides them their distinctive ontological status, and separates them from outlandish imaginings like ruby mountains and two-headed men. The distinction then can be set as follows. There are mentally-posited objects that have no existence in the external world, yet can qualify concrete, extra-mental beings, and further conform to what they are in \textit{nafs al-amr}. These are the mathematical hypotheses of astronomy, \footnote{Cf. Black, “Estimation in Avicenna,” 10.}

\footnote{Cf. Black, “Estimation in Avicenna,” 10.}
and, more generally, objects of mathematical sciences. They are thus differentiated from entities like ruby mountains and their like, which though are mentally-posited, yet do not qualify concrete realities, nor conform to what is in *nafs al-amr*.

Finally, Jurjānī also draws on the religious significance of astronomy. Its benefit is not simply that it allows the times and direction of prayers, or calculation of the lunar calendar to mark important days and months for the observance of Islamic practice. Rather, the primary benefit which he mentions in the above remark is in terms of its ability to cultivate awe in God’s creation. He situates the pursuit of astronomy as a devotional exercise, which sets one to follow the Qur’ānic injunction to “reflect on the creation of the heavens and the earth and the alterations of the day and night” and thus, eventually awed by the glory of God’s creation proclaim, “Our Lord, Thou hast not created this in vain.”

Glorification of God through God’s creation is a theme that runs throughout Islamic thought and occurs in various ways. One way to heighten a sense of wonder about God’s creation would be through reflecting on the mystery of nature to conclude that while God’s knowledge of His creation is complete, the human mind, however, is incapable of knowing the deeper secrets of the heavenly world. Another way, which seems to be expressed here, may take to studying nature with a certain conviction that notwithstanding all the inadequacies of human knowledge, it could still, to a degree, tell something about the way God has fashioned the world. On the latter

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view, presumably one cannot really praise God through empty fiction or false imaginings. Here lies the ontological import of *nafs al-amr* for Jurjānī. He, in this passage, contends that the astronomical hypotheses conform to what they are in *nafs al-amr*. Elsewhere, he defines *nafs al-amr* as an expression of God’s knowledge that includes the forms of all things. The result is obvious and striking. By means of the notions of astronomy, one has a route to understand and appreciate God’s wisdom. Even though humans can never be able to know the reality of God’s knowledge, but insofar as *nafs al-amr* is an expression of the latter, they can strive to reflect on His wisdom in creation.

Together, the philosophical, utilitarian, and theological arguments provide Jurjānī with a formidable refutation of Ījī’s skeptical argument against astronomy. Ījī considers that, given astronomical hypotheses are an imagining that have no external existence, one can infer that they have no claim to truth, reality, and certainty. Jurjānī demonstrates that the inference is not valid. For truth does not consist simply in a relation of conformity with the external world, but also includes conformity with *nafs al-amr*. The hypotheses conform to *nafs al-amr* and thus are true. And reality does simply refer to the external world, but there is also an objective reality in the form of having an

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150 On this point, see ibid; and Ragep, “Freeing Astronomy from Philosophy,” 50.

151 Jurjānī, *Ṭaʿrīfāt*, 205 (entry on *nafs al-amr*). See also Qayṣārī, *Matlaʿ Khuṣūs al-Kalim* (Tehran, 1299), 16.

152 Cf. Jardine, “The Forging of Modern Realism,” 166 (who notes, “Together, the argument from sufficiency of evidence and the argument from common ground provide Kepler with a devastating rebuttal of the sceptic’s specific examples”).

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establishment in *nafs al-amr*. The hypotheses have this establishment and thus are real.

Moreover, these notions also inform us about the conditions of concretely existing things, so their contact with the external world cannot be overlooked. It is mediate and indirect, but it is real nonetheless.

### 4.6 Contingency of Astronomy

In the *Sharḥ al-Mawāqif*, this vision of knowledge in astronomy as, at least in part, correctly imagined and real is accompanied with another vision that is particularly Ashʿarite in character, that of astronomy as, at least in part, being a contingent science, meaning that it is conceivably possible for its conclusions to be otherwise.\(^{153}\) The latter vision can be inferred from Jurjānī’s at times brief, supportive comments or alternatively by the absence of any critical remark towards Ījī, while the latter is making what is a more explicit case for the contingency of astronomy.

The first example that clearly depicts this vision of knowledge as contingent is Ījī’s statement that the problem of equant in the case of Mercury is one which astronomers have not been able to resolve.\(^{154}\) The equant problem was the important

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\(^{153}\) Cf. Ibid, 168 (who writes, “In the *Apologia* this vision of knowledge in astronomy as, at least in part, conjectural is linked to another vision that is remarkable for the period, that of the history of astronomy as evincing a cumulative growth of knowledge”).

\(^{154}\) *Sharḥ al-Mawāqif*, vol. 7, 133. This example has been discussed lucidly and at some length by Robert Morrison, “What Was the Purpose of Astronomy in Ījī’s *Kitāb al-Mawāqif fi ‘ilm al-kalām*?” 213-5. On the problematic model of Mercury in Tūsī, see Ragep, *Tadhkira*, 52, 57, 69, 208 (ll. 11 [11]), and 448 (commentary on ll. 11 [11]). See also, Ahmad Dallal, *An Islamic Response to Greek Astronomy: Kitāb Ta’dil Hay’at al-Aflāk of Ṣadr al-Sharī‘a*, ed. and trans. Ahmad Dallal (Leiden, New York: Brill, 1995): 13. As Dallal notes, the problem of the equant point is further complicated in the case of Mercury because of the deferent itself rotates around the center of another sphere called the director. Both Shīrāzī and Ṣadr al-
legacy of Ptolemy who, in order to account for the observed motions of the planets, had
required that the path of heavenly bodies was circular around one point, which was the
center, and uniform around another point, which was a point off-center, called the
equant.\textsuperscript{155} Ījī understood, correctly, that the equant violated the principle of uniform
circular motion around the center and went on to declare that the problem, “threatens
to demolish their foundations” in astronomy.\textsuperscript{156} Jurjānī remarkably broadens the scale of
the problem by highlighting that the equant problem is not just applicable to Mercury
but also applies to Venus and the superior planets. That Jurjānī is familiar with the
solution Ṭūsī has already provided to resolve the difficulty, at least in planets other than
Mercury, is clearly not brought to bear in this instance.\textsuperscript{157} Moreover, in connection with
Ījī’s next objection, which the latter would simply pose as a rhetorical question, Jurjānī
proceeds to accentuate its import by saying it also, “threatens to demolish their
foundations [of astronomy] in entirety.”\textsuperscript{158} Ījī’s objection is that if the astronomers view

Shari‘a proposed complicated models, which are however not referred to by Ījī or by Jurjānī in this
passage.

\textsuperscript{155} O. Neugebauer made the key point that the equant should be seen as Ptolemy’s “most
important discovery in the theory of planetary motion.” Instead of assuming that the motion of the
deferent had to be uniform about its center, Ptolemy proceeded, on the basis of mathematical analysis
and systematic observations, to derive the point about which the motions of the planet were uniform, a
point which, in fact, was off-center. “To philosophical minds, it appeared to be the major blemish of the
Ptolemaic system.” See O. Neugebauer, \textit{A History of Ancient Mathematical Astronomy} (New York, Berlin:
Springer-Verlag, 2012, original 1975), 155; also Noel Swerdlow, “The Empirical Foundations of Ptolemy’s
Science}, 89, 231n69 and n70.


\textsuperscript{157} See Ragep, \textit{Tadkhira}, 208 (II.11 [11]).

\textsuperscript{158} \textit{Sharḥ al-Mawāqif}, vol. 7, 133.
the motion of orbs to be volitional (which was indeed the case, adopted as a standard throughout medieval Islamic astronomy), then why not explain such irregularities of motion by succession of particular volitions? But “the truth,” Ījī concludes, “is to refer all this to the All-Powerful and Free Agent.” Jurānī adds that, “this is the salvation from [all] these difficulties.” By raising alternative possibilities in a rhetorical fashion, the main point is clear: there is no air of demonstrative or Aristotelian-kind of necessity in the planetary schemes of the astronomers. That kind of certain and exact knowledge which can explain the nature of ultimate reality can only be possessed by the Creator.

The second example where Ījī replaces the air of necessity in astronomy by entertaining other possibilities is concerning the explanation of solar and lunar eclipses and the phases of the moon. As Morrison notes, the eclipse, standardly, was (and is) explained by the alignment of the positions of the sun, the moon, and the observer. Likewise, the lunar phases were understood as the shape of the illuminated portion of the moon arising due to the changing positions of the sun and moon relative to the

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159 The volitional motion of orbs, that is, that orbs adhere to (or are supposed to adhere to) uniform circular motion is to be distinguished from, say, human volition. See Rageps’ introduction to the Tadhkira, 44-6.

160 Sharḥ al-Mawāqif, vol. 7, 133.

161 Ibid.

162 The key point that such remarks purport to show is that the certainty with which the philosophers (or the astronomers) pronounce their theories about the heavens is misplaced. Their claims must be viewed skeptically. See Sabra, “Science and Philosophy in Medieval Islamic Theology,” 23-41; also Dhanani, “Al-Mawāqif,” 388-90.

163 Sharḥ al-Mawāqif, vol. 7, 138. Robert Morrison has drawn attention and discussed the significance of this example in his “What was the Purpose of Astronomy?” 206-212.
observer. Ījī explores other alternatives by citing first a view he attributes to Ibn al-Haytham, namely, that the lunar phases could be accounted for by assuming moon as a luminous body, with one half shining, and other half not, and allowing it to rotate with a speed equal to its orb. A new moon then would simply be that the dark side of the moon faces us; alternatively, a full moon will occur when the earth is faced by the luminous side, and in the intervening positions the phases of the moon will vary proportionately. Ījī realizes that what he has said earlier about solar and lunar eclipses does not allow for this possibility that he attributes to Ibn al-Haytham. However, he also boldly declares that the negation of this possibility does not negate all possibilities. For it is possible, he continues, that God creates light in the sun and the

164 Morrison, “What was the Purpose of Astronomy?” 206-7.


166 For placing Ījī’s reference to Ibn al-Haytham in the intellectual context of what Ibn al-Haytham actually said, see Morrison, “What was the Purpose of Astronomy?” 209-10. Morrison explains: “Ījī’s insinuation that eclipses were not necessarily due just to the interposition of the sun, moon and earth relied on a misunderstanding of a statement by Ibn al-Haytham about the luminosity of the moon. Ījī alleged that Ibn al-Haytham wrote that the moon might very well be self-luminous and, then, that the phases of the moon could be due only to the moon’s own rotation in its orb. A full moon would be when the moon’s luminous face was facing the earth. Ījī argued, seemingly correct, that the evidence of eclipses showed that Ibn al-Haytham’s theory was wrong. But the disproving of one alternative did not entail the rejection of all alternative explanations for eclipses, so perhaps the moon and other planets were illuminated by a source other than the sun, etc.

The problem was that Ījī misunderstood Ibn al-Haytham; Ibn al-Haytham, in fact, wrote that while other planets besides the sun could be luminous, the moon was not luminous...Thus Ījī’s misunderstanding of Ibn al-Haytham led him to find a debate among astronomers where, in fact, there was none.”
planets, or that the sun and the planets possess no light of their own and actually receive it from other heavenly bodies that are hidden from us.\textsuperscript{167} 

In his comments, Jurjānī denies actual \textit{knowledge} of such possibilities, but importantly maintains the theme of contingency. For example, he agrees that it is possible, say, that there is a dark and dull planet below the orb of moon which obstructs it at some conjunctions; however we don’t know of any such body.\textsuperscript{168} And, in remarking on the possibility of an unknown body illuminating the sun and the planets, he only extends the contingency theme further by clarifying that the reason why we haven’t seen the body though it is greatly luminous may be because of its distance from us or it being occulted by some other dark celestial bodies. After fully describing the alternative situation, he then rhetorically asks, following Ījī, why is this option not possible while it is not even as remote as that of Ibn al-Haytham’s?\textsuperscript{169} To be sure, both Ījī and Jurjānī do not deny the standard view of the cause of eclipses and lunar phases being on account of alignment of the celestial bodies; as Morrison concludes, what they are denying, in fact, is the claim that the explanation cannot be otherwise.\textsuperscript{170} 

In the same vein, it would be sufficient now to merely point out a few more examples which gesture towards this vision of contingency in astronomical knowledge. In the section on lunar markings, Ījī notes what astronomers have said to explain them

\textsuperscript{167} \textit{Sharḥ al-Mawāqif}, vol. 7, 138. 
\textsuperscript{168} Ibid. 
\textsuperscript{169} Ibid. 
\textsuperscript{170} Cf. Morrison, “What Was the Purpose of Astronomy,” 208.
citing seven views altogether but for each of the first six views he immediately follows it with an appropriate objection that invalidates it.\textsuperscript{171} Turning to the seventh view, he terms it the more likely one (\textit{aqrab}), which is that the lunar markings may be on account of some celestial bodies being inside the epicycle of the moon such that they do not accept illumination equally while always keeping their positions with the moon.\textsuperscript{172} Jurjānī’s comment is brief, that the view may be more probable, but it does not lend itself to a resolution (\textit{lakin la yuslihu li-ta‘wil}).\textsuperscript{173} Jurjānī would have recognized that the assumption of unknown celestial bodies inside the moon’s epicycle is problematic, and thus the view clearly is not air-tight. The next example appears in the chapter on the galaxy or the Milky Way, where Ījī mentions differences in the views that attempt to explain the precise nature of it.\textsuperscript{174} For instance, the galaxy may refer to a gaseous vapor or to combustion due to the sun in that circle at some times or to small stars which cannot be distinguished perceptibly. After having related the differing views, he provides the reason for mentioning them, which he explains is to express the fictions (\textit{khurafāt}) of the astronomers, so that an astute person will recognize that they have no proof for them in what they say and that there is no reliability in what they transmit from the ancients; for their views, he concludes, are only false imaginings (\textit{khiyālāt}

\begin{itemize}
\item \textsuperscript{171} \textit{Sharḥ al-Mawāqif}, vol. 7, 139-140.
\item \textsuperscript{172} Ibid., 140. Ibn al-Haytham presents this theory; for an article that presents that text, see A. I. Sabra (ed.), “Treatise on the Marks Seen on the Surface of the Moon,” \textit{Journal for the History of the Arabic Science} 1 (1977): 5-19.
\item \textsuperscript{173} \textit{Sharḥ al-Mawāqif}, vol. 7, 140.
\item \textsuperscript{174} Ibid.
\end{itemize}
fāsida) and inane pretendings (tamwiḥāt bārida) which manifest their weakness at first sight. Jurjānī does not provide any rejoinder this time, and other than adding a few words to clarify Ījī’s intent, he continues onward.

One reason for not responding against Ījī’s negative portrayal here may be found in the distinct nature of conclusions of astronomy in the two cases. Recall that Jurjānī’s earlier rebuttal was directed against a view that was skeptical of assumptions, such as, positing in a sphere points that are stationary and others moving with different speeds; or assuming in a sphere circles of which some are parallel to one another and other intersecting; or assuming in the two equators the intersection at two points between which the distance is the greatest. In other words, the response was against skepticism in a particular domain of astronomy where the considerations were largely mathematical (or geometrical) or even quantitative. On the other hand, in speculating about the exact nature of the galaxy or in answering what it is taken to be composed of, one is not engaging in the mathematical domain of astronomy. Rather, such speculations are part of another distinct domain of astronomy where the considerations are largely physical and more qualitative in nature, and being so are debatable, or at

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175 Ibid. I draw the translation of terms from Sabra, “Science and Philosophy in Medieval Islamic Theology,” 37-8.

176 For more examples purporting to show that the “certainty” of astronomers’ pronouncements about their theories of heaven is misplaced, see Dhanani, “Al-Mawāqif,” 388-90.
least not certain. That would at least seem to explain Jurjānī’s attitude, which can accept that conclusions related to the physical domain of astronomy are not demonstratively certain and can be otherwise, and so possess some weakness; however, the judgments pertaining to the mathematical aspect are correctly imagined in accordance to the things themselves, and thus should not to be treated in the same way as the physical conclusions by, for instance, characterizing them as false imaginings.

4.7 Conclusion

Let us take stock of the situation by way of conclusion. The target of Jurjānī’s rebuttal is the then prevalent skepticism that was associated, importantly, with mathematical thinking, either found in pure disciplines like arithmetic and geometry or the mathematical component of a mixed science such as astronomy. Both the philosophically- and theologically-motivated skeptical arguments attacked this mathematical component by converging on a single key point that, since mathematics studies mental notions that have no external existence, its sciences are inferior. Lurking below is a striking convergence of a much more fundamental nature. Despite the vastly

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177 On the distinction between the quantitative and qualitative domains in astronomy, see N. Jardine, The Birth of History and Philosophy of Science: Kepler’s A Defense of Tycho against Ursus with essays on its provenance and significance (Cambridge: Cambridge University Press, 1984): 211-225.

178 This aspect about the “contingency” of astronomy can be observed more fully in the next chapter where I examine what Jurjānī says about astronomy in his main astronomical work, Sharḥ al-Tadhkira (Commentary on the Tadhkira).
different trajectories of the two arguments, both positions share the same interpretation of truth and reality – an interpretation that accords primacy to the external world and rebuffs the realm of mental beings. For the Avicennian as well as for Ījī, a thoroughgoing metaphysical basis in the external world provides the only proper criterion for a host of significant epistemic and ontic categories including truth, reality, and certainty. Mathematical sciences being conjectural and imaginary, as such, utterly fail that standard.  

Jurjānī’s overall position is firmly embedded within the Ashʿarī kalām framework. However, unlike Ījī, he possesses and deploys the conceptual wherewithal and analysis to resist the skeptical stance of the latter. Contra philosophers, he upholds that numbers have no separate external existence in the world, but are mental objects. Likewise, he also seems to hold that the continuous measure treated in geometry also possesses no existence in the world. He fully endorses the mathematical conclusions of astronomy, that they are only mental, having no external existence. Yet it does not lead him to the skeptical view. The bulwark from slipping into skepticism comes in the form of his overall unique, elaborate, and sophisticated conceptual understanding of the issues of truth and reality. The key explanatory notion is that of nafs al-amr, which serves just as much as an epistemological standard of truth as it is an ontological category of reality. Jurjānī argues that reality ought not to be always construed with 

\[179\] Recent scholarship has brought out the striking similarity of the “philosophical” viewpoint with the “kalām” stance of Ījī on the issue of the ontological status of mathematical entities. See, especially, İhsân Fazlıoğlu, “Between Reality and Mentality.”
reference to the external world, but, rather, can also be in the form of the thing itself (or *nafs al-amr*), given conceptually and without any commitment to its ontological existence. The thoroughgoing metaphysical view of reality is thus challenged by this new form of objective, conceptual, and factual reality. The same analysis applies to truth. Truth is not simply the quality of extra-mental objects, but even mental notions can be true if they conform to what is in *nafs al-amr*. A final element is the conception of mathematical notions as mental predicates that are abstracted from the sphere of concrete existence. This very fact tells us that mental notions can qualify concretely existing individuals in the material world. Mathematical concepts, then, have an occurrence in objective reality, but also a qualification in the external world. Their contact with the real is doubly strengthened. In passing, it is worth noting that Jurjānī’s conception of mathematical sciences is linked with his vision of truth and reality that is remarkable for the period. The vision will also prove particularly influential, turning *nafs al-amr* into one of most important philosophical terms of the subsequent period, but that is beyond the scope of this work.\(^{180}\)

Jurjānī’s view of the reality and truth of the mathematical domains in the sciences is linked with another striking view, Ashʿarite in legacy, which he shares with Ījī, namely, the contingency of the largely qualitative or physical domains of astronomy.\(^ {181}\)

\(^{180}\) On this point, see İhsan Fazlioğlu, “Between Reality and Mentality,” 1-39.

\(^{181}\) Here, one may mention a view of Islamic astronomy, though a minority one at the time of Jurjānī, that astronomy could in principle be divorced completely from natural philosophy altogether, to be established self-autonomously using its own principles. The view finds its culmination most famously in
In this domain, the views are not air-tight for other alternatives can be possible, and at
the level of ultimate reality truth may belong only to God Himself. It is then precisely
this distinction between the mathematical and physical domains, in terms of the
differences in their ontological status and the kind of epistemological confidence they
generate, which blends together to accord a rather unique and indeed interesting
position to astronomy – a position which is neither pure, nor clear-cut. One possible way
to substantiate this last point is to extend the contextualization of his views on
astronomy beyond those found here in his philosophical-theological works, and examine
the vision of astronomy expressed in his properly astronomical work, Sharh al-Tadhkira
– to which we turn in the next chapter.

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the works of fifteenth-century polymath, 'Ali Qushji. See Ragep, “Freeing Astronomy from Philosophy,”
49-71.

182 The relation between the mathematical (or quantitative) and the physical (or qualitative)
aspects of astronomy becomes, of course, of paramount importance in the forming of the “new”
astronomy at the hands of Kepler and others. See N. Jardine, “The Forging of Modern Realism,” 141-73;
also Rhonda Martens, Kepler's Philosophy and the New Astronomy (Princeton, Oxford: Princeton
University Press, 2000), esp. 99-112, 142-69; N. Jardine, The Birth of History and Philosophy of Science:
Kepler’s A Defense of Tycho against Ursus with essays on its provenance and significance (Cambridge:
CHAPTER 5:

JURJĀNĪ’S VISION OF ASTRONOMICAL KNOWLEDGE IN HAY’A WORKS

5.1 Introduction

Jurjānī’s vision of astronomical knowledge combine elements of his epistemology with the tenets of theoretical astronomy, its distinguishing mark being its novel blending of — what one may call — a philosophically realist, moderately skeptical yet pragmatic attitude to astronomical conclusions.¹ He took the goal of astronomy to describe the world. Yet he recognized that conclusions fulfilling the rigorous criteria of conclusive demonstration are rarely ever achieved in astronomy, so that the astronomers are well-advised to strive for a more approximate kind of knowledge that is persuasive.² To be sure, he understood some judgments of astronomy to be certain or “beyond any doubt.” However, the more typical standard of astronomical knowledge he set out was not that of “certainty,” but of conclusions that could adequately account for

¹ I take these three terms from Jardine, who utilizes them to characterize a particular stance he attributes to the Latin scholastics of the early modern period. See Jardine, “The Forging of Modern Realism,” esp. 152-3. On a similar note, Edith Sylla also identifies an analogous viewpoint that she labels “critical realism” among those she calls the moderni in Latin Europe. See her writings, especially, Edith Sylla, “John Buridan and Critical Realism,” Early Science and Medicine 14.1 (2009): 211-47. In this chapter, while I proceed to clarify the specific nature of Jurjānī’s synthetical stance towards astronomy, needless to say, what is intended by these terms here are not the systematic modern philosophical traditions of “realism,” “skepticism,” and “pragmatism.”

the phenomena and were consistent with some of the physical principles of the time.\(^3\)

Of special significance is to see how Jurjānī’s methodical thinking was steered by and led to the solution of problems encountered in the astronomy of the time.\(^4\)

Jurjānī’s views on astronomical knowledge are set out most fully in his primary work on advanced theoretical astronomy, *Sharḥ al-Tadhkira* (Commentary on the *Tadhkira*), a widely recognized and appreciated, medium-sized, scholarly commentary on Ṭūsī’s astronomical masterpiece, *al-Tadhkira fi ʿilm al-hay’a* (Memoir on Astronomy).\(^5\) Throughout his work, a few key ideas play a central role in Jurjānī’s vision of astronomical knowledge, ideas which remain consistent with his thinking in his philosophical-theological works. For the purposes of the following overview, we can confine our attention to four broad topics:

1. Astronomy as a Means for Glorification
2. Independence from Metaphysics (*mā baʿd al-ṭabīʿīyāt*)
3. Relation with Natural Philosophy (*ʿilm al-ṭabīʿīyāt*)
4. The Task of “Knowing” in Astronomy: Certainty and Probability
   a. Judgments

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\(^3\) Ibid., 168.

\(^4\) Don Howard, “Einstein’s Philosophy of Science,” (who points, similarly, to the significance of the manner in which “Einstein’s philosophical thinking was driven by and contributed to the solution of problems first encountered in his work in physics”).

b. Eastward Direction of Secondary Motion

c. Models

d. Orbs

e. Distances and Sizes of Planets

f. Relative Positioning of the Planets and the Sun

g. Lunar Markings

h. Dynamics of Celestial Motion

i. Taqdir (Divine Foreknowledge) as an Explanatory Category

j. “According to them:” Questioning the Necessity of Principles

5.2 Astronomy as a Means for Glorification

For Jurjānī, as for many others, the world of nature possesses a sense of respect and admiration primarily due to it being a creation of God and a manifestation of His wisdom. His opening remarks of the Sharḥ al-Tadhkira reflects this theme rather vividly, through his mention of a diverse set of natural events and processes exhibiting the majesty, wisdom and grandeur of God, as a means to glorify Him.

“Full of blessings is that Being who made the zodiacal constellation of varying ranks and signs in the sky; who beautified the sky with shining stars of different luminosities and visibilities; who out of His clear and manifest wisdom determined for the sky seven planets, each being on an orb (falak) swimming in its course; who out of His complete and perfect power fashioned the sky with fixed stars that make rounds glorifying and praising their Lord; who subjugated the sun and the moon making them move unceasingly, as an admonition for the people of intellect that they may be reminded of His signs and that they may know the number of years and the count of time; who turned the conditions of the sublunary bodies by the positions of the heavenly bodies, as a mercy to the servants until the day of Reckoning, on account of the succession of light after darkness, and the progression of seasons and years; who
sends rain from the sky to revive the earth after its death, and who takes out from the earth pairs for the many plants and varieties of ripe fruits, so that there will be signs in them for people who reflect. ‘From the earth we created you and to it we shall return you and from it we shall then bring you back a second time.’\textsuperscript{6}

Jurjānī’s reverential view of the universe thus becomes the foundational aspiration for cherishing and pursuing the knowledge of nature. A deeper examination of knowledge of the universe would allow for a more meaningful glorification and enrichment of knowing its Creator. Moreover, for Jurjānī, this knowledge of the heavens is not only respectable and admirable, but also accessible to man, and is attained precisely through the science of astronomy. In his introduction to the \textit{Sharḥ al-Tadhkira}, he writes:

\begin{quote}
“Astronomy is a ladder that is erected to ascend towards the highest skies; and is a capacity to perceive what God has placed in the skies through His originating command, one which cannot be fully grasped; and is a science of a region which can never be thoroughly known. Accordingly, it provides illumination to that person who reflects on the heavens and ponders on its conditions in terms of the exaltedness of His Being and the greatness of His attributes - such that it bewilders the power of mental understanding, and dazzles the vision of intellects and imaginations. One can attain through it the highest felicity in the hereafter and this world. Indeed, this is the favor of God, He grants to whomsoever He wishes.”\textsuperscript{7}
\end{quote}

This vision of astronomy, as a discipline through which one can acquire knowledge of the world and ultimately cultivate awe and wonder in God’s creation, is

\textsuperscript{6} Jurjānī, \textit{Sharḥ al-Tadhkira}, fol. 1b.
\textsuperscript{7} Ibid.
again repeated in the introduction of his other astronomical work, *Sharḥ al-Mulakhkhas* (Commentary on the *Mulakhkhas*). Here Jurjānī commends astronomy for its method of reflection (*tafakkur*) and contemplation (*tadabbur*) about nature and, as a science, is thereby most suited to enable one to attain the knowledge of God (*maʿrifa*); and to support his view, he quotes the Qurʾānic verses previously cited by him, to the same effect. He writes:

“Indeed, rational demonstrations and transmitted testimony prove that the highest level for a man desiring to reach the pinnacle of perfection and the loftiest rank of felicity is to know (*maʿrifa*) the Creator, Exalted is He, in terms of the exaltedness of His Being and the purity of His attributes. This is attained by reflecting (*tafakkur*) on the creation and its secrets, and pondering (*tadabbur*) over the things and their ways. Astronomy studies the celestial orbs and their shapes, and reveals the elements and their states. It is an excellent aid in this task for the person who pursues it by way of reflecting on the creation of the skies and the earth, prompting him to say, ‘O my Lord, You have not created this in vain’.”

From the above introductions of his astronomical works, one can make at least three observations. The abstract religious value of astronomy in terms of offering an approach to glorify God through His creation is a theme that runs throughout many discussions of astronomy in post-classical Islam. As the passages show, the same

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8 For Jurjānī’s commentary, I have mainly used Istanbul, Ayasofya MS 2649, 178 ff. Istanbul, Ayasofya MS 2655, 84 ff. was used for comparison. For Jaghmīnī’s text, I use the recent Arabic edition and translation by Sally Ragep. See her dissertation titled Maḥmūd ibn Muḥammad ibn ʿUmar al-Jaghmīnī’s *al-Mulakhkhas fi al-hay’a al-basīta*: An Edition, Translation, and Study, (McGill University, 2014); now published as Jaghmīnī’s *Mulakhkhas: An Islamic Introduction to Ptolemaic Astronomy* (Springer, 2016).


concern figures quite prominently and centrally in Jurjānī’s own view of astronomy, which therefore is supportive of a general trend during this period, according to which the practical utilitarian role of astronomy was overshadowed by this more primary benefit in terms of cultivating awe in God’s creation.11 More importantly, it is not that Jurjānī simply thinks that knowledge of astronomy is a path to God, which is a sentiment shared by many. But the distinctive feature of the religious warrant he provides to pursue astronomy is that it directly derives its authority from the Qur’ān – an authority that can be seen through his explicit references to several Qur’ānic terms, verses, and motifs that share in their message of urging the reader to engage in tafakkur (reflection) and tadabbur (contemplation) on the world of nature in order to attain a deeper appreciation of the wisdom of the Creator.12

Secondly, it can be seen that Jurjānī is explicitly putting forward an epistemology that is more optimistic about man’s ability to gain true knowledge about the heavens that is based on a God-given capacity for reason.13 For one thing, this optimism is

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Journal of Qur’anic Studies 15.1 (2013): 1-22. In addition to the technical works where such praise for God occurs, there is also a religious cosmological discourse dedicated to the glorification of God’s wisdom in creation. See Anton M. Heinen, Islamic Cosmology: A Study of As-Suyūṭī’s al-Hay’a as-saniya fi-l hay’a assunniyya (Beirut: Steiner, 1982), esp. 37-52.

11 On this point, in addition to above studies, see, also, Sally Ragep, “Maḥmūd ibn Muḥammad ibn 'Umar al-Jaghmīnī's al-Mulakhkhas fi al-hay’a al-basīṭa,” 115-150.

12 Compare Jurjānī here with another distinguished Islamic astronomer of the fourteenth-century and muwaqqit (timekeeper) in the Umayyad mosque in Damascus, 'Alā’ al-Dīn ibn al-Shāṭir (d. ca. 1375), who, in the introduction to his al-Zīj al-jadīd, commends astronomy on similar religious lines and supports his view with the same Qur’ānic verses. See Damascus MS Zāhiriyya 3093, fol. 2b-3a. See, also, Sabra, “Science and Philosophy,” 39-40 (who refers to Ibn Shāṭir). For references to different verses of the Qur’an, see below.

13 Cf. chapter three (theory of knowledge and truth). His confident views on astronomy parallel his positive stance towards the attainability of knowledge.
alluded to through his remarks about astronomy as, for example, “a capacity to perceive what God has placed in the skies,” or an “excellent aid” in the activity of reflecting on creation. More directly, at the beginning of the *Sharḥ al-Tadhkira*, he expands on Ṭūṣī’s remark of God as “One Who inspires Truth” by stating that He “enables that the intellectual forms (al-ṣuwar al-ʾilmiyya) present in the hearts of those who are prepared for it (fī quḥab al-mustaʿiddin) conform to what is present in nafs al-amr (lit., thing itself, and, more interpretively, “the fact of the matter”).” For Jurjānī, true knowledge means conformity between the forms in the human mind and nafs al-amr, the latter, as seen earlier, being an expression of God’s essential knowledge, covering the forms of all things. He continues that this true knowledge is attainable “by means of noble souls (al-arwāḥ al-muqaddasa), which act as intermediaries between the imperfect souls, clouded by the murkiness of human nature, and the principle of overflowing generosity, free from any traces of imperfection in spreading its illumination.” Behind this remark we may see elements of Jurjānī’s theology and metaphysics. For Jurjānī, God, as the possessor of true knowledge, reproduces a part of His attributes in the sufficiently prepared human mind such that it possesses illumination through which knowledge of the hidden form of the world is attainable. It is this divine ground for the attainability

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14 *Sharḥ al-Tadhkira*, fol. 2a.
15 Ibid. On nafs al-amr, see previous chapter.
16 See previous chapter.
17 *Sharḥ al-Tadhkira*, fol. 2a.
of true knowledge that lends support to a rather confident stance towards the possibility of successful scientific research.

A final observation in Jurjānī’s presentation of astronomy in the introduction of both astronomical works concerns the language of his remarks which, drawing on various themes, ideas, and phrases, clearly bespeak of a context noticeably grounded in Qurʾān. For example, he cites the following phrases or ideas: setting the zodiacal signs in the heavens (25:61, 15:16);19 adorning the sky with stars (37:6); the celestial bodies swim along in their course (21:33); stars which glorify and praise their Lord (40:7); made sun and moon subservient, both diligently pursuing their course (14:33); instruction (‘ibra) for those endued with understanding (12:111); so that they may come to know the number of years and the count of time (10:5, 17:12); God sends down rain from the skies, and gives therewith life to the earth after its death (16:65); He produced diverse pairs of plants each separate from the others (20:53); He produced different types of fruits (35:27); surely therein are signs for the people of intellect (13:4, 15:75); from the earth did We create you, and into it shall We return you, and from it shall We bring you out once again (20:55); Our Lord, thou hast not created all this in vain (3:191); Such is the bounty of God, which He bestows on whomsoever He wills (62:4).20

In addition to providing a reason to pursue astronomy based on the authority of the Qurʾān, these Qurʾānic motifs also tend to portray the study of astronomy –

19 The format of citing the Qurʾān refers to the ṣūra (chapter) number followed by verse number.
perhaps, for the students in madrasas reading Jurjānī’s treatise – as a component, an extension, or, at least, substantially connected to their religious scholarship.

Furthermore, Jurjānī’s unusually extended use of the Qur’ānic discourse to preface both of his astronomical works also serves to present a more religiously-accommodating image of astronomy. One can argue that Jurjānī, who knows his kalām and falsafa, is putting together a coherent epistemological program. He seeks to defend astronomy from claims of pagan (or foreign) origins or being religiously suspect, by grounding it in a discourse infused with themes drawn from the Qur’ān, and shaped by a view of astronomy which values it primarily for its abstract theoretical religious benefits, in terms of knowing God through God’s creation. This reading can also be substantiated by considering his explicit remarks in the Sharḥ al-Mawāqif where he takes to defending astronomy against the skeptical assessment of Ījī, invoking parallel ideas about the value of astronomy in terms of cultivating awe in God’s creation, and supporting it by quoting the same verse from Qur’ān. Overall, Jurjānī paints an image of astronomy that is not just favorable and natural to Islam, but one that also provides a warrant to pursue it.

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22 See previous chapter.
5.3 Independence from Metaphysics (mā baʿd al-ṭabīʿa / ʿilm al-ilāhī)\textsuperscript{23}

A significant feature of an understanding of astronomy in the pre-modern Islamic period is the question of astronomy’s dependence on metaphysics. The range of opinions extends from one end where astronomy stands as an independent and self-autonomous science, to the other end where it becomes wholly subordinate to metaphysics (al-ʿilm mā baʿd al-ṭabīʿa).\textsuperscript{24} In the Sharḥ al-Tadhkira, Jurjānī significantly extends Ṭūsī’s ideas to present a distinctive view that takes astronomy to be largely independent of metaphysics in its immediate workings, and, importantly, also in its principles (mabādiʾ), even if some of its principles may find their ultimate basis in metaphysics. Indeed, there appears a stance in Jurjānī’s thinking that is clear and defined, which is to view astronomy as doubly removed in the sense of its ‘discussions’ (or what he refers to as masāʾil, i.e., problems) and principles from metaphysics. Such a position can be inferred from his comments on Ṭūsī who, in general, sets the particular context in which the issue is both framed and discussed.

\textsuperscript{23} While the phrase Ṭūsī explicitly uses is mā baʿd al-ṭabīʿa (lit., that which comes after tabiʿiyyāt or Aristotelian physics), Jurjānī takes it to mean the same as ʿilm al-ilāhī (lit., science of divinity). See Sharḥ al-Tadhkira, fol. 3b. For the following analysis, the only relevant point is to distinguish this discipline, which I have translated as metaphysics, from that of tabiʿiyyāt, which can be commonly rendered as natural philosophy (or, more accurately, and less anachronistically, as natural sciences). For Jurjānī, the manner in which astronomy relates to these two disciplines is distinct. This section will explore astronomy’s relation with metaphysics, while the subsequent chapter will examine its relation with natural sciences/natural philosophy.

A preliminary remark that relates to the issue is Ṭūsī’s opening statement of Book I, that every science has a subject (mawḍūʿ), principles (mabādiʾ) and problems (masāʾil). Quite standardly, he explains that problems of a science are propositions which are proved in the science itself. Similarly, the principles can be either self-evident, in which case they don’t require any proof, or obscure, in which case they are proved in some other science and are taken for granted in this science. Initially, Jurjānī further develops Ṭūsī’s characterization of science by adding certain distinctions and clarifications, thus providing a more detailed understanding of principles and problems. He then turns to the more important question of the theoretical nature of the relationship between the two.

Concerning the principles of a science, he begins by drawing a well-known distinction, namely, between conceptions (taṣawwurāt), which he takes to be the different conceptual parts of the problem, and assents (taṣdīqāt), which are utilized to formulate proofs in a science. The distinction, of course, draws on the philosophical understanding of theoretical knowledge in Islam, according to which knowledge can be divided into a conceptualization that occurs without any judgment (called tasawwur), and an assent (taṣdīq) where the intellect makes a determinate judgment to which a

25 I. Intro [1].
26 Ibid.
27 Sharḥ al-Tadhkira, 2b.
truth-value can be assigned. In the case that these principles are self-evident, Jurjānī continues, whether they are conceptions or judgments, elucidation (bayān or proof) is not required. However, when they are obscure, they require theoretical reflection (naẓar). An obscure conception is elucidated in that science itself, whereas an obscure judgment is proved in some other science, wherein it forms the problem of that science, and will be taken for granted in this science without any proof.

Concerning the problems of a science, Jurjānī writes that they constitute the primary goal (maqṣūd biʾl-dhāt) and the very reality (ḥaqīqa) of a science. Indeed, he continues, the subject and the principles are ancillary goals (maqṣūdān biʾl-ṭabʿiyya), insofar as they are goals pursuant to the problems, whereas the problems are the goals in themselves. And it is only on account of the extreme closeness of the subject and principles with the problems that they are sometimes counted as two other parts of science.

Importantly, he then addresses the nature of the theoretical relationship between the problems and principles, making two key claims. First, when the problems are judgments given through reflection (i.e., they are not self-evident), “they have to be in accord with the conceptions present in the parts of the problems, which are its

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28 See also previous chapter which discusses the terms in the context of his theoretical understanding of knowledge.

29 Sharḥ al-Tadhkira, 2b.

30 Ibid., 3a.

31 Ibid.

32 Ibid.
principles of conception.” 33 Second, the problems also have to be “in accord with the premises (muqaddamāt) from which its arguments are formulated, which are its principles of assent.” 34 One reason why these two claims are significant is that they allow us to glimpse exactly how Jurjānī derives his understanding of the nature of dependency that exists between problems and principles. It can be observed that the principles, both conception and assent, impose a certain constraint on the problems by warranting that the latter be in accord with them. But, more importantly, the assent-principles do not just have to be simply satisfied; rather they are, in fact, utilized to “formulate arguments” in order to establish the proofs for the problems themselves. In this sense, they also perform a certain formative work in the elucidation of the problems.

This view of how the problems of a science depend on the principles is linked with another important, conceptual issue that Jurjānī clarifies: the question of where exactly the proof of principles must be established. Ṭūsī held that the “definitions” and “rules” of astronomy will be presented by way of introduction in his astronomical work, but for their elucidation/proof one should refer to the other sciences from which the principles are taken. 35

33 Ibid.
34 Ibid.
35 Tadhkira, l.Intro. [4].
In his commentary, Jurjānī first equates the definitions with his conception-principles (mabādī taṣawwuriyya) and the rules with assent-principles (mabādī taṣdīqiyya). Next, the important point that Jurjānī proceeds to differentiate is that it is not the case that both types of principles (i.e., conceptions and assent) need to be proved in another science. Instead, only the assent-principles require proof, and not conception-principles. To draw this conclusion, he first distinguishes between the status of a conception-principle and assent-principle. Let us present what he says.

According to Jurjānī, it is permissible that (1) an assent-principle in astronomy can form a problem in another science, thereby being intended in itself (maqṣūd biʾl-dhāt) in that science, (2) while in astronomy that same assent-principle is only needed accidentally in order to fulfill the primary objective which is to conceive the problems of astronomy. By contrast, a conception-principle in astronomy cannot form a problem in another science. He explains the reason as follows:

“[conception-principles] are not the goal in themselves even in the slightest in the written sciences because the goal intended in reality in a science is actually its problems. And it is not possible that the conception becomes the problem; rather the conception can become nothing except a principle of conception for the science.”

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36 Sharḥ al-Tadhkira, 4b.
37 Ibid., 4b-5a.
38 Ibid., 4b.
39 Ibid.
40 Ibid., 5a.
41 Ibid.
The point Jurjānī is making can be understood as follows: the reason why any principle is proved in another science is because it forms the proper problem of that science. However, because conception-principles can never occur as problems, they will not require elucidation in another science. In other words, in order to understand conception-principles one should not be referred to some other science; instead, such principles should be enunciated in the very science itself.42

Jurjānī extends this point further by considering the case where two distinct sciences may possess the same conception-principles.43 For instance, one can think here of ʿilm al-kalām and uṣūl al-fiqh which share the conception-principles, namely, the definition of proof and its various kinds.44 Jurjānī says that in order to conceive the conception-principles in this situation it is not correct that one is referred to either of the two sciences because this will entail giving preference to a science without any cause for said preference (tarjīḥ bilā murajjiḥ).45 Ultimately, the right of the situation demands that the conception-principles be conceived in both the sciences separately.46

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42 Ibid.
43 Ibid.
44 Ibid. See the margin where the copyist gives this example.
45 Ibid. Tarjīḥ was used in the Islamic legal theory as a particular term which referred to the activity of weighing conflicting or incongruent evidence through systematic comparison. See Hallaq, Shari’a, 77. Also, see Bernard Weiss, The Search for God’s Law: Islamic Jurisprudence in the Writings of Sayf al-Dīn al-Āmidī (Salt Lake City: University of Utah Press, 1992): 729-38. For its significance in the astronomical context, see Morrison, Islam and Science, 78-95, esp. 87.
46 Sharḥ al-Tadhkira, 5a.
Yet, Jurjānī adds, it is true that sometimes one of the sciences is prior (mutaqaddim) to its companion, or the conception-principles are made well-known (ishtihār) with one of them at the expense of the other. And so it happens that, for the elucidation of the conception-principles in this science, one refers to the other science. However, Jurjānī continues, when referring to the other science, it is always done with the understanding that the other science has a “greater right of presentation” (ahaqqu dhālik al-taswīr); it is not done with the understanding that one necessarily (yajibu) must refer to the other science for the elucidation of the conception-principles. The latter happens only in the case of assent-principles.47

One notices that Jurjānī is teasing out a subtle distinction in the status between the conception-principles and assent-principles. The distinction effectively turns on the fact that the assent-principles can form problems for another science, whereas the conception-principles can never become problems in any situation. Accordingly, the assent-principles are elucidated (or proved) in another science on account of being problems of that science. Conversely, the conception-principles are never elucidated in another science. And even in the exceptional case when they are presented in another science, it is only on account of that science holding a greater right of presentation. Moreover, the assent-principles are dependent on another science for it is only in that science that they can be and are elucidated; whereas the conception-principles, if they are dependent on another science, are dependent only for it is that science where they

47 Ibid.
are more appropriately presented. Thus, one can formulate a stronger relation of dependency between the two sciences in the case of the assent-principles, as opposed to the conception-principles. Finally, the upshot of this move in terms of astronomy’s dependence on other sciences is that, according to Jurjâni, only for the elucidation of rules of astronomy (assent-principles) should one be referred elsewhere, not for an elucidation of its definitions (conception-principles).

Having looked at the manner in which Jurjâni theoretically understands the way problems of a science depend on its principles, we can now turn to appreciate his view on the more concrete issue of the nature of astronomy’s dependency on metaphysics. What prompts the discussion is a rather curious and seeming puzzle in Ṭūsî. In the introduction, Ṭūsî explicitly states that principles of astronomy requiring proof are demonstrated in three sciences: metaphysics, natural philosophy and geometry.48 Calling these principles rules and definitions, that one studying astronomy should be familiar with, he proceeds to summarily present them in his work, acknowledging that for their proofs one can refer to the original sciences. But when he actually turns to present the rules and definitions, he notably writes that such principles can be grouped into two categories: a division pertaining to natural philosophy and another pertaining to geometry.49 One would have expected Ṭūsî to add another division pertaining to metaphysics; however, he simply ignores it. And it is precisely this omission which

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48 Tadhkira, I.Intro [2].
49 Ibid., I.Intro [4].
becomes somewhat like a puzzle for his commentators leading up to Jurjānī. In general, Jurjānī maintains that the omission can be explained away for metaphysics is indeed included within the two divisions; therefore the extra division would be redundant.\textsuperscript{50} But the interest lies in the theses about the extent of separation between astronomy and metaphysics which is articulated using his own theoretical scheme.

The solution Jurjānī offers is to maintain, like Ĥūsî, that principles of astronomy can be grouped into the two divisions pertaining to geometry and to natural philosophy, and that the principles proved in metaphysics are included in the two divisions. He then details this solution by setting a kind of typology for each of the two divisions.\textsuperscript{51} The division of geometry (i.e., the geometrical corpus on which astronomy depends for its principles) comprises either [1] the principles of geometry, for instance, the definition of a point, line and plane, and [2] an elucidation (bayān) of their existence, or [3] the problems of geometry, for instance, the statement that any two circles equidistant from the equator will be equal. Similarly the division of natural philosophy comprises either [1\*] the principles of natural philosophy, for instance, the definition of a simple body, and [2\*] an elucidation of its existence, or [3\*] the problems of natural philosophy, for instance, the statement that a body possessing a principle of circular motion cannot undergo a rectilinear motion.\textsuperscript{52} He then concludes, what occurs as problems in either

\textsuperscript{50} Sharḥ al-Tadhkira, 5a.
\textsuperscript{51} Ibid.
\textsuperscript{52} Ibid.
the geometrical or the natural philosophical corpus is elucidated in the respective science itself; however, what occurs as principles is indeed elucidated in metaphysics.53

Let us not underestimate what Jurjānī has said. Astronomy takes its materials only and directly from geometry and natural philosophy, and not from metaphysics. Moreover, it is possible that the material it takes from the two sciences may have a basis in metaphysics, but that may only be in the case when the material happens to be a principle of either of the two sciences; not when it is from amongst their problems. Recall also that the principles can be either conception-principles or assent-principles, and, according to Jurjānī, it is only the latter which can be proved elsewhere. The upshot is that even if the material taken by astronomy happens to be a principle of either geometry or natural philosophy, only if it is an assent-principle can it be proved in metaphysics. For otherwise, if it is a conception-principle, according to Jurjānī’s classification, it would be deduced that it can rightfully be conceived and elucidated in either geometry or natural philosophy. This is because a conception-principle, for him, cannot serve as a problem for some other science that eventually furnishes its basis. Indeed, if one extends Jurjānī’s reasoning fully here, one is not even compelled to seek recourse to geometry or natural philosophy for the elucidation of such conception-principles since, by Jurjānī’s thinking, one can rightfully elucidate them in astronomy itself.

\[53\] Ibid.
At any rate, it is clear that Jurjānī has severely delimited and diluted the role of metaphysics in astronomy. The vision he conveys is one of astronomy largely being independent of metaphysics, both in terms of its discussions and its immediate principles. More remarkably, there seems an additional level of freeing from metaphysics that is at work. Conventionally, the principles of natural philosophy can be understood as possessing their ultimate basis in metaphysics. But, Jurjānī seems to be loosening the exclusive grip of metaphysics over, at least, some principles of natural philosophy. This move is indicated here in the form of the independence of the conception-principles from metaphysics. And it is also evidenced more clearly when one turns to his explanation of the principles taken from natural philosophy in astronomy.

5.3.1 Principles of Astronomy: Natural Philosophy or Metaphysics?

The principles taken from natural philosophy are discussed by Ţūsī in Book I, Chapter II, wherein he offers a list of them along with a brief explanation. In his commentary, among other additions, Jurjānī displays a keen concern to inquire into the origin of a few of the principles, thus shedding some light on the relation between natural philosophy and metaphysics. In this regard there are at least four passages that deserve attention.

The first passage details a discussion concerning the different kinds of circular motion54 – a discussion that Jurjānī flags as belonging to natural philosophy exclusively.

54 Corresponding to Tadhkira, I.2 [3] (lines 16-20).
In the passage, Ṭūsī maintains that the circular motion of the celestial bodies can be divided into either simple or compound motion.\footnote{Ibid.} Quite standardly, he defines simple motion as that which arises from a single, simple body such that every single point on it cuts equal arcs from the circumference in equal times. Compound motion is simply that which arises from a combination of more than one single body. He then proceeds to delineate a general rule, saying that every motion whose angles vary in equal times is composed; however, the converse does not hold as a rule. Jurjānī first clarifies why the converse does not hold true, for he states correctly, that it is possible that a composed motion may actually cut equal angles at the circumference in equal times.\footnote{Sharḥ al-Tadhkira, 13b.} The counter-example he cites is of the motion of lunar nodes which undergo a compound recession, where the orbit of the moon recedes around the ecliptic while the ecliptic passes around the mean sun such that motion cuts equal arcs at the center of the universe in equal times.\footnote{On compound recession, see Henry F. A. Pratt, On Orbital Motion: The Outlines of a System of Physical Astronomy (London: John Churchill and Sons, New Burlington Street, 1863), 89.} Jurjānī eventually concludes by saying that this discussion pertains to “natural philosophy undoubtedly” (ṭabʿiyya bi-lā shubha).\footnote{Sharḥ al-Tadhkira, 13b.} In other words, the physical principles highlighted here are proved directly in natural philosophy, not in metaphysics.
The second passage concerns a topic which Jurjānī explicitly states partly belongs to metaphysics. Corresponding to I.2 [2] and [3] in the Tadhkira, this section details a key rule: every motion has a principle. It then proceeds to provide a classification of the two main types of principles of motion, that is, nature and soul. Finally, it turns to divide motion due to nature into three further kinds. The first kind is motion towards the center whose principle is heaviness and which is characteristic of the two heavy elements, earth and water. The second kind is motion away from the center whose principle is lightness and which is characteristic of the two light elements, air and fire. The final kind is motion about the center which is called positional motion and which is characteristic of the celestial bodies. Jurjānī ends the section with a brief, rather vague remark that a portion of this discussion pertains to metaphysics (baʿḍu min ʿilm al-ilāhi) because an investigation of orbs (falak) and principles (mabādī) forms the task of the latter.\(^59\) Decidedly pithy, the remark in this case leaves open the precise role of metaphysics in providing these principles.

Finally, there are two more passages where Jurjānī provides a clearer statement of the extent and limitation in the role of metaphysics in providing grounding for certain principles. The first is his comment about the most fundamental of principles, that is, the impossibility of void.\(^60\) The principle requires that the universe be completely filled

\(^59\) Ibid., 13a.
\(^60\) Tadhkira, I.2 [1].
with bodies and thus provides the reason for astronomy itself.\textsuperscript{61} In his comments, Jurjānī first clarifies that the principle of the impossibility of void is held in astronomy irrespective of how one understands void, whether taken to mean an existing space that is abstracted from matter or, a presumed space surrounded by bodies.\textsuperscript{62} It is worth noting that the first meaning is an obvious reference to the conception of place adopted by philosophers, while the second signals that of the \textit{mutakallimūn}. Concerning the origin of the principle he then writes, “it is said that upon first assessment this problem is metaphysical because the discussion pertains to what is devoid of any matter, and on second assessment it is related to natural philosophy because its outcome is that bodies are prevented from existing in a respect where they do not meet and where nothing exists between them that touches them.”\textsuperscript{63} Note that the position is prefaced with a curious, “it is said,” which indicates that the matter may be debatable. But the position that can be inferred from the remark is that the impossibility of void is an issue that is primarily dealt with in metaphysics, and only secondarily treated in natural philosophy. In other words, this is a principle that astronomy takes from natural philosophy but appears to be ultimately proved in metaphysics.

The second instance that deserves attention pertains to his remark on the rule that nothing having the principle of circular motion can undergo any rectilinear motion.

\begin{flushright}
\textsuperscript{61} See Ragep’s introduction, \textit{Tadhkira}, 42. \\
\textsuperscript{62} \textit{Sharḥ al-Tadhkira}, 12a. \\
\textsuperscript{63} Ibid., 12a-12b.
\end{flushright}
This is a principle that Ṭūsī includes among those that astronomy takes from natural philosophy, and is also an important one, for it provides several corollaries that in turn establish how celestial bodies can or cannot move. For instance, Ṭūsī explains these corollaries rather elegantly by saying “the celestial bodies neither tear nor mend, grow nor diminish, expand nor contract; neither does their motion intensify nor weaken. They do not reverse direction, turn, stop, depart from their confines, nor undergo any change of state except for their circular motion, which is uniform at all times.” 64 In his comments, Jurjānī examines the extent of dependence on metaphysics for some of these conclusions and, again, seems to loosen the grip of the latter. With direct reference to a portion of the above remark that begins from the clause that the motion does not intensify nor weaken all the way till the end, Jurjānī says “it is said” that these conclusions are “shared between natural philosophy and metaphysics.” 65 The reason why they are shared, he explains, is because it is possible for one to take demonstrative proof (burhān) from either of the two sciences. Metaphysics can provide an independent proof because “it can be said that since the orbs in their motion are similar to the noble principles which are the causes of its motions and that there is no change in these principles, there is no change in these motions which are its effect.” 66 But natural philosophy can equally furnish a proof, too, since “it can be said that because orbs are

64 Tadhkira, I.2 [4].

65 Sharḥ al-Tadhkira, 14a.

66 Ibid.
simple and what issues forth from simple bodies does not change, hence the motion of orbs neither changes in their direction nor in their condition of being slow or fast, rather each motion will proceed monoformly.” Of note, based on this reasoning the doctrine of the simplicity of orbs is not a metaphysical postulate, but is included as belonging properly to natural philosophy, perhaps as a conception-principle, one may imagine. At any rate, the main point is that these conclusions can be autonomously established within the domain of natural philosophy; they do not require metaphysics for their origin.

To summarize: The conclusions that astronomy takes from natural philosophy are not in themselves metaphysical nor, importantly, are they necessarily ultimately grounded in metaphysics. To be sure, the impossibility of the void certainly seems to be one such principle which, though taken from natural philosophy, is primarily proved in metaphysics. However, Jurjānī highlights that there are a number of other principles taken from natural philosophy which are either autonomous, having no reliance on metaphysics, or are those which are proved in metaphysics but can simultaneously be independently proved through natural philosophy itself as well. In other words, Jurjānī presents an understanding of astronomy where even in the remote basis of at least some of its principles, astronomy is largely independent of metaphysics.

67 Ibid.
5.4 Relation with Natural Philosophy (ʿilm al-ṭabīʿīyyāt)

5.4.1 Introduction

Understanding astronomy’s relation with the natural sciences/natural philosophy (ṭabīʿīyyāt, or Aristotelian physics) requires navigating a particular tension that arises from two distinct issues that may appear to pull in opposing directions. First is the issue of the disciplinary identity of astronomy, and, more precisely, the distinctness of that identity in terms of its subject matter, the method of study, and the kinds of expected results.\footnote{Rhonda Martens, \textit{Kepler’s Philosophy and the New Astronomy} (Princeton and Oxford: Princeton University Press, 2000), ch. 5 (“The Aristotelian Kepler”).} Since Aristotle, mathematics had come to be neatly distinguished from natural philosophy insofar as the former focused on the study of form in abstraction from matter, while the latter concentrated on the form and matter of changing objects.\footnote{Ibid., 100. The heart of Aristotle’s philosophy of mathematics is presented in his \textit{Metaphysics}, XIII 3 1077b15-1078a31 (he explains: mathematical objects exist neither in separation from physical objects nor in physical objects but in another way). Also, see Aristotle, \textit{Physics}, II 2 193b22-194b15 (Aristotle begins with the claim that physical bodies contain surfaces, volumes, lengths, and points, but he goes on to assert that a mathematician does not consider these features as the limits of a physical body). See Jonathan Lear, “Aristotle’s Philosophy of Mathematics,” \textit{The Philosophical Review}, 91.2 (1982): 161-92; D. K. Modrak, “Aristotle on the Difference between Mathematics and Physics and First Philosophy,” \textit{Apeiron: A Journal for Ancient Philosophy and Science}, 22.4 (December 1989): 121-139.} In general, Aristotle had proscribed transfer of the methods of one science to another which meant that mathematics was not to be used in natural...
philosophy. But, he had also allowed the use of elements from one discipline to another in, what he had referred to as the “subaltern sciences,” later taken as the mixed sciences, such as optics, mechanics, and astronomy. It had meant that astronomy was a mathematical science, but not a pure one like geometry or arithmetic, for it took its principles from natural philosophy, among others. Similarly, astronomy’s aim of treating an object mathematically was not simply confined to abstract numbers and measures, as is the case in arithmetic or geometry; it also included bodies being in motion, which meant that it was a science dependent on existing things – thereby resembling natural philosophy. With such features of astronomy that could have easily conduced to a kind of disciplinary conflation between the latter and natural philosophy, it is not surprising to find pre-modern Islamic astronomers examining the relationship between both disciplines. More significant is the fact that they generally maintained the integrity of their discipline by assigning to it “different objects of study, methods, aims, and epistemological interpretations” in relation with natural philosophy.

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70 Aristotle, *Posterior Analytics*, 75a27-75b2 (Aristotle cautioned against mixing disciplines on the grounds that qualities essential to the kind studies by one discipline may be accidental to that studied by another). Quoted in Martens, *Kepler’s Philosophy*, 102.

71 Aristotle, *Posterior Analytics*, 75b14-21, 76a10-25 (In special circumstances, some disciplines could be mixed provided the principles used were common to both and the deduction proceeded from a discipline that was higher to one that was lower; Aristotle listed astronomy as a discipline acceptably mixed with mathematics. Sometimes, the move was not merely permitted but recommended. The goal of natural philosophy was not to show that something is the case but also to explain why; to explain why, one needed to appeal to a higher a discipline. See *Posterior Analytics*, 78b35-79a16, 87a32-87b4). Quoted in Martens, *Kepler’s Philosophy*, 102.

72 Martens, *Kepler’s Philosophy*, 103.

Second is the question of the degree of merger between astronomy and natural philosophy: whether astronomy should be grounded in the latter and to what extent or alternatively can it be, or even should it be, established without recourse to the latter? There are several kinds of opinions one finds in Islamic astronomy during the post-classical period. First, there is a view associated with the Spanish Aristotelians of the 12th c., a minority view by Jurjānī’s time, that the Ptolemaic system was false, and a system based on the homocentric spheres which would fully satisfy the criteria of Aristotelian natural philosophy and metaphysics could be devised. Another minority view is that which was expressed by al-Bīrūnī and which later finds its culmination in ‘Alī Qushjī, namely, that astronomy could, in principle, and perhaps should, be completely divorced from natural philosophy altogether, to be established self-autonomously using


74 To see this debate in the particular context of Earth’s motion, see Ragep, “Ṭūsī and Copernicus: The Earth’s Motion in Context,” *Science in Context*, 14 (2001): 145–64.


its own principles. Finally, there is the view that matures in the *Tadhkira* of Ṭūsī, a view that was perhaps widespread at the time Jurjānī wrote, according to which a system fulfilling the rigorous criteria of homocentric spheres is unlikely to be attained in astronomy, so that the astronomers are well-advised to use the eccentrics and epicycles in their modeling but should not tolerate any further compromise (such as Ptolemy’s *equant*). For Jurjānī, as presumably for other commentators on the *Tadhkira*, the last view marks the point of departure.

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5.4.2 Background of Ṭūsī

In the Tadhkira, an important aspect of astronomy’s relation with natural philosophy is the demarcation of astronomy’s subject and method of proof. Jamil Ragep’s study has discussed Ṭūsī’s contribution on this issue and can be utilized for a quick overview.⁸¹ Although Ṭūsī defines the subject of astronomy as the simple bodies, thereby according a prominent position to the physical component of the discipline, he, however, does not make astronomy a sub-division of natural philosophy. For one thing, he appropriates the classical topos of astronomy as a “mixed science,” insofar as he states that it takes its principles from natural philosophy, metaphysics and geometry, but, in itself, is a mathematical study of simple bodies.⁸² Furthermore, he writes that the subject of astronomy is the simple bodies which are investigated in a particular way, namely, with respect to their quantities, qualities, positions and intrinsic motions.⁸³ As Jamil Ragep has shown, upon this conception astronomy is concerned with the external aspects of bodies, and can thereby be differentiated from natural philosophy, which also studies simple bodies, but with respect to their essential nature.⁸⁴ In other words, the distinction between astronomy and natural philosophy was not due to their subject matter, for both studied simple bodies; rather the distinction was due to the different aspects of those bodies that each discipline studied: astronomy investigated the

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⁸¹ Ragep, Tadhkira, esp. 38-41.
⁸² Ibid., 38.
⁸³ Tadhkira, I. Intr. [2].
⁸⁴ Ragep, Tadhkira, 38-9.
external appearances of simple bodies, while natural philosophy studied their essential and intrinsic natures.\(^85\)

The separate aims of astronomy and natural philosophy lend themselves to each discipline also possessing a distinct method of proof, one that is conducive to the inquiry in each domain. Concerning the proof for propositions like the sphericity of the sky and Earth, Ṭūsī writes that the proofs in astronomy are \textit{inniyya}, which convey existence, and so are opposed to the \textit{limmiyya} proofs which convey the necessity of that existence, and which are utilized in the \textit{al-samāʿ waʾl-ʿālam} (\textit{De caelo}) literature.\(^86\) The \textit{innī}-\textit{limmī} dichotomy, in a sense, hearkens back to Aristotle who distinguished between two kinds of demonstration, one which gives “the fact that” something is the case (simply put as the demonstration-that), and another which gives “the reason why” it is so (simply put as the demonstration-why).\(^87\) In the context of Ṭūsī’s astronomy, the two proofs are meant to differentiate between two distinct methods to establish the configuration of the simple bodies: the \textit{innī} proofs, being based on observational evidence and reasoning, can furnish a judgment, say, that \((\text{inna})\) the Earth is generally spherical in shape, but cannot provide a physical or metaphysical cause for why \((\text{limā})\) the Earth is spherical; the latter task is achieved by a \textit{limmī} proof which provides the necessary

\(^85\) Ibid., 39.
\(^86\) \textit{Tadhkira}, II.1. [8].
\(^87\) On the manner in which the \textit{innī} and \textit{limmī} dichotomy derives from the fact/reasoned fact distinction made by Aristotle, but is used distinctively in the context of Ṭūsī’s astronomy, see Ragep, \textit{Tadhkira}, 38-41, 45-46, 386-88. See also Aristotle, \textit{Posterior Analytics}, Bk. II, Ch. 13.
cause for the Earth’s sphericity.\textsuperscript{88} As such, one can understand the distinction between the two disciplines as follows: astronomy relies on observationally-related evidence to furnish conclusions that something is the case, not why it is such, whereas natural philosophy relies on a more rational and a priori reasoning to provide the real cause for why something is the case.

5.4.3 Stylistic Features that Accentuate the Image of Astronomy

Jurjānī’s commentary on the \textit{Tadhkira} includes, amongst other additions, a more detailed, intentional, and perceptive explanation of the distinct disciplinary workings of astronomy. For one thing, it displays certain stylistic or pedagogical features that tend to accentuate the image of astronomy as an organized and secure science. Three examples may illustrate this point. First, the concern to organization is displayed in his attempt to explain the rationale why Ṭūsī composed the \textit{Tadhkira} in four books.\textsuperscript{89} The decision is not arbitrary, but reflects a logical order. The discussion, he writes, can either be about the intended object itself or that upon which it is based, for there is no need for a topic other than these two.\textsuperscript{90} The latter division constitutes the First Book, which contains prefatory materials (\textit{muqaddamāt} or lemmas) that must be presented by way of introduction. Concerning the division about the intended object itself, there can be three options. The discussion can either be about the celestial bodies, which is dealt

\textsuperscript{88} Ragep, \textit{Tadhkira}, 39.
\textsuperscript{89} \textit{Sharḥ al-Tadhkira}, 2b.
\textsuperscript{90} Ibid.
with in Book Two, or the terrestrial bodies, which is dealt with in Book Three, or about one of these two types of bodies used as a means to analogize towards the other, which is dealt with in Book Four that discusses the sizes and distances of the heavenly bodies.\textsuperscript{91}

A second example that sheds lights on the integrity of astronomy is Jurjānī’s duly-acknowledged paraphrase of Ptolemy which explains how astronomy can actually lend advantage to other sciences including metaphysics and natural philosophy.\textsuperscript{92} Amongst the benefits astronomy accords to metaphysics (\textit{ilāhī}), is that it makes it easy to conceive of that activity which is devoid of motion; this is because it is familiar with the attributes of those beings which are on one hand corporeal, moving and being moved, but on the other hand, unchanging, moving perpetually upon a single form without any alteration.\textsuperscript{93} Likewise, it contributes to natural philosophy (\textit{ṭabīʿī}) insofar as allowing one to know whether motion is from the middle, towards it or around it, and thereby enabling one to distinguish the corruptible from the incorruptible, heavy from the light, and cause from the effect.\textsuperscript{94} Finally, astronomy conduces to practical philosophy (\textit{al-ḥikma al-khalqiyya}), or the virtuous conduct in practical actions. From the qualities associated with the noble and majestic bodies in terms of the constancy of their condition, beauty of arrangement and of balance, and freedom from things which

\textsuperscript{91} Ibid.


\textsuperscript{93} \textit{Sharḥ al-Tadhkira}, 5a-5b.

\textsuperscript{94} Ibid., 5b.
they do not need, what becomes evident is generosity and love in these matters – which allows its followers to accustom and reform their soul, as it were, to a similar state of the bodies in terms of nobility and constancy. The significance of Jurjānī’s paraphrase is not so much in its content which is, of course, Ptolemaic. Rather, the very incorporation itself is remarkable for it tells us something about the distinct identity of astronomy as a branch of mathematics (as opposed to natural philosophy), and its reciprocal relation with metaphysics and natural philosophy, where it is not simply dependent on them, but also has to offer them something valuable in return.

A third, and final, stylistic feature that bears on the ordered nature of astronomy is Jurjānī’s utilization of a technical term, ḥukm or judgment (pl. aḥkām), to refer to the propositions in Bk. II, Ch. 1 – such as, the sphericity of the sky and the Earth, the relation of the Earth to the sky being as a center of the sphere to its circumference, and the Earth being completely stationary. At the head of that chapter, Jurjānī brings a stand-alone, rather extended, introductory passage (eighteen lines) that summarizes the precise and complete statement of what he lists as the four main judgments (aḥkām) that will be proved in it. In a sense, the presentation accords a certain unprecedented prominence to them and their label as judgments, as well as serves as an instance to

95 Ibid.
97 Sharḥ al-Tadhkira, 14a.
98 Tadhkira, II.1. Sharḥ al-Tadhkira, 14a-22a.
99 Sharḥ al-Tadhkira, 14a-b.
appreciate Jurjānī’s didactic concern to write a student-friendly commentary. But there appears a further significance.

Among various disciplines, the word ḥukm (rule or judgment; plural. aḥkām) continued to be used with specific connotations as a proposition which both arises as a consequence of a certain fact (a legacy of its usage in Islamic law as a legal verdict, judgment or decision based on the Sharīʿa), and serves as a principle to regulate and guide. Jurjānī repeatedly employs the word in a manner that implies both these connotations. He outlines that the judgments can be established (ithbāt), that they can be proved (yubayyinu) by means of inniyya proofs, and that limmiyya proofs can also provide the causes (ʿilal) of these judgments and demonstrate that they apply to the external world (khārij). Notions of establishment, proof and cause all highlight an important aspect of judgments - that they are provable. In fact, at more than one place Jurjānī discusses them as problems (masāʾil), or the intended goals (maṭālib) of astronomy, with the clear implication that they are to be proved in astronomy itself and are not dependent for proof in a higher science. This provides a rather important distinction. Unlike principles (mabādiʿ) which are understood as basic assumptions upon

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100 See J. Schacht “Aḥkām,” in The Encyclopedia of Islam, Second Edition, ed. C. E. Bosworth et al. (Leiden: Brill, 1986) (“In the field of religious law, aḥkām is therefore synonymous with the furūʿ, the positive law as opposed to legal theory or jurisprudence (fiqh); but as it also means judicial decisions, the term is more specifically used of the application of legal rules to concrete cases”).

101 Sharḥ al-Tadhkira, 21b.

102 Ibid., 14b.

103 Ibid., 22a.

104 Ibid., 14b (“min maṭālib hādhaʾl-ʿilm”).
which astronomy is based and which are proved in higher sciences, judgments \textit{(akhām)}
are not “granted” propositions or postulates, nor are they self-evident primary notions or axioms. Instead, they refer to propositions that are taken to require proof and which are proved in the science of astronomy itself.\footnote{Despite their autonomous status, Jurjānī (like Ṭūsī) will, however, make an interesting exception to the avoidance of seeking proofs in a higher science with regard to the judgment of the Earth’s state of rest. See below the section on “judgments” which sets out Jurjānī’s discussion. See also \textit{Sharḥ al-Tadhkira}, 20b.}

Yet these judgments are intended to function, in one sense, similar to the way in which principles function. This becomes clear when one considers that the propositions labeled by Jurjānī as \textit{akhām} (judgments), in Ṭūsī’s text and in his own commentary, function as rules or parameters which provide the basic astronomical framework for the subsequent task of model-making for the celestial bodies. That the enterprise of model-making launches on an understanding of the universe shaped by these propositions, one can view them as being epistemologically prior to the models (\textit{uṣūl} or hypotheses). This then provides another key feature of Jurjānī’s understanding of \textit{akhām}. They refer to epistemologically medium-level propositions that are taken to require proof in astronomy, which, once obtained, however, allows them to function in a manner similar to that of principles, as rules for judging more low-level propositions or models (\textit{uṣūl}). That these propositions represent a distinct epistemological category separate from the principles, on which they depend, and the models, whose development they guide, extends, in a sense, this conception of astronomy as an orderly and organized system.
5.4.4 Different Objects of Study: Ḥiss (Senses) and Ḥaqīqa (Reality)

In addition to the stylistic features that lend integrity to astronomy as a discipline, a more substantial manner in which Jurjānī illuminates the distinction between astronomy and natural philosophy is in terms of their different objects of study. An understanding of astronomy as dealing with the external aspects of bodies and of natural philosophy as concerned with their natures, which was only implicit in Ṭūsī, is brought to a much fuller light in Jurjānī. The important distinction Jurjānī introduces is between a proposition that is established “according to the senses” (*bi ḥasab al-ḥiss*) and one that is established “according to the reality” (*bi ḥasab al-ḥaqīqa*). At a basic level, it is a distinction between the world as it appears to us and the way it actually is; Ṭūsī does not explicitly make this distinction in the chapter. Likewise, in the earlier commentaries of Shīrāzī and Nīsābūrī, while one can find statements regarding the sky being spherical sensibly or the visible surface of the Earth being spherical sensibly, the comments are brief, infrequent and, importantly, do not juxtapose and oppose it to reality (*ḥaqīqa*). In this context, Jurjānī’s work can be viewed as rather unique when one considers that the two concepts of senses (*ḥiss*) and

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106 Jurjānī makes this distinction throughout II.1. *Sharḥ al-Tadhkira*, 14a-22a. For examples, see below.

107 This can be observed by a reading of Ṭūsī’s corresponding main text (Bk. II, Ch. 1).

reality (ḥaqīqa) not only feature recurrently, but also substantially form a central component of his understanding of how astronomy differs from natural philosophy.

Let us begin by first presenting a few examples, which mark this distinction between the world as is sensed and things as they are. In Bk. II, Ch. 1, Jurjānī frequently emphasizes the division to ascertain the strength of various judgments. For example, he explains that the Earth’s undulations that occur due to mountains and depressions do not cause it to depart from having a general sphericity that is sensible (al-ḥissiyya), even though it causes it to depart from having a sphericity that is real (al-ḥaqiqiyya). Likewise, parts of the barley corn attached to the sphere of the Earth will not cause it to depart from being spherical sensibly (al-ḥissiyya). Similarly, the phenomenon of the earlier rising and setting of the stars for those in the East, relative to their rising and setting for those in the West, provides evidence for the sphericity of the Earth - sphericity which, he adds, is according to the senses (istidāra ḥissiyya). Also, the phenomenon of the observed equality of the size of a celestial body at all distances along its revolution, if it were true (which is not the case since the size is different at the horizon) says Jurjānī, would be the strongest evidence for the sphericity of the skies, and “necessarily entail the sphericity of the sky and the motion of the celestial bodies

109 Sharḥ al-Tadhkira, 14a-22a.
110 Ibid., 17b.
111 Ibid.
112 Ibid., 17a.
according to the senses” (al-istidāra al-ḥissiyya). Analogously, he utilizes the dichotomy to question the strength of other judgments, reasoning that certain observational evidence may allow that actual reality may be other than what appears, since other possibilities can be supported by that data. For example, the phenomenon of gradual ascent of the celestial bodies up to a certain maximum and then its gradual descent is a “weak” proof to establish the sphericity of the sky since it does not preclude the sky from being a straight plane. This is because in the case of being a straight plane, it is possible, Jurjānī states, that “the ascent increases gradually in sequence not according to the nafs al-amr, but according to appearance (al-ru’ya).” Again, concerning Ṭūsī’s proof that the Earth is in the center, Jurjānī uses the dichotomy to offer his understanding of what he took Ṭūsī to be doing: “He proceeded to prove that the Earth is in the center in the sense that the center of the mass of Earth coincides with the center of the universe, irrespective whether in reality (haqīqa) or sensibly (ḥiss) since there is no difference between the two which can be perceived.”

Already, the import of the distinction between ḥiss and haqīqa in his thinking about the world is fairly evident. A more substantial role, however, that Jurjānī takes these concepts to play is through their function to demarcate the different territories of astronomy and natural philosophy. Astronomy is assigned the task of examining the

113 Ibid., 15b.
114 Ibid., 15a-b.
115 Ibid., 18b.
world of appearances, or the sensible world, whereas natural philosophy is assigned the
task of investigating the world as it is. The most explicit and clearest statement in this
regard comes in his comments concerning the judgment astronomy establishes that the
sky is spherical. He writes:

“The first [judgment] is that the sky is spherical in shape and motion
according to the senses (bi-ḥasab al-ḥiss). Indeed, this judgment is
one of the intended goals of this science and is proved in it by
means of inniyya proofs (adilla inniyya) and persuasive signs
(amārāt muqnia’). However, as for the sphericity of the sky in shape
and motion according to reality (bi ḥasab al-ḥaqīqa), this is from
amongst the intended goals of natural philosophy and is proved in
it by means of limmiyya proofs.”

Though stated less forcefully, the same idea is also present when he writes about
the position of the Earth being at the center of the universe.

“The third judgment: The relation of the Earth to the heaven is like
the relation of the center of a circle to its circumference. This
statement means two things. First that the center of the mass of
earth coincides with the center of the universe according to the
senses (ḥiss). However as for the proof that the center of the mass
of the Earth coincides with its center, that is the task of natural
philosophy. Second: the Earth in its being is not of any sensible
amount in its relation with the orbs of the fixed stars, and even in
its relation with the orbs below it until the orbs of the sun.”

These specific examples, especially the first, confirm the more general point.

According to Jurjānī, astronomy examines the world at the level of what is sensible,
which is to say the world of appearances, whereas natural philosophy may investigate

116 Ibid., 14a-b.
117 Ibid., 14b.
that same world but at the level of what things are, which is to say actual reality. The point is a significant one. First, the clear articulation of the distinction between the two sciences in terms of the ḥiss-ḥaqīqa dichotomy is a unique contribution of Jurjānī, which is not found, at least as clearly, in either Ṭūsī or his commentators prior to Jurjānī.

Second, and of significance, is that it clearly demarcates a distinct and unique territory for each of the two sciences in terms of the distinct aspect of the world each studies. This removes any seeming disciplinary conflation that may potentially arise from the fact that both sciences may occasionally share the same problems or doctrines, for instance, the sphericity of the sky.

In order to understand this distinction more clearly, it is worth recalling that the twin concepts of ḥiss and ḥaqīqa that Jurjānī is utilizing are, in fact, technical notions having definite philosophical underpinnings which must be understood properly. In his Sharḥ al-Mawāqif, Jurjānī explains that the notion of ḥaqīqa can either be individualized (juzʾiyān, particularized), in which case it is called an identity (huwiyya), referring to some particular thing possessing extra-mental existence (al-wujūd al-khārijī). Alternatively, it can be generalized (kulliyyān, or universalized), in which instance it is called a quiddity (māhiyya), referring to the actual essence of something. That natural philosophy studies the world at the level of ḥaqīqa then means that it is concerned with essences and quiddities, on the one hand, and of the concrete, extra-mental identities of things on the other. This draws out a stark contrast with astronomy which studies the

\[\text{Sharḥ al-Mawāqif, vol. 3, 18-9.}\]
world at the level of hiss, a world which is of the order of appearances, the external features of bodies, or those aspects which can be perceived. As a whole, Jurjānī’s understanding is consistent with Ṭūsī’s statement that astronomy is interested in bodies in a particular way, namely “with respect to their quantities, qualities, positions and intrinsic motions.” In fact, Jurjānī’s achievement can precisely be viewed as providing a more fine-grained explanation of the distinctness in that particular way, by drawing on the technical notions of hiss and haqīqa.

5.4.5 Different Methods of Reasoning

In addition to the distinct objects in the study of astronomy and natural philosophy, a related substantial difference between the two sciences is a contrast between the methods of reasoning operative in both domains. The distinction is already clearly evident in Jurjānī’s above statement that astronomy establishes the judgment of the sphericity of the sky sensibly by means of inniyya demonstrations and persuasive signs, whereas natural philosophy establishes it with respect to haqīqa by means of limmiyya demonstrations. (We shall return to consider the significance that reasoning in astronomy can be sub-divided into proofs that are demonstrative and those that are persuasive, but, for now, we shall continue to draw out the contrast between the two sciences.)

119 Tadhkira, I. Intr. [2].
120 Sharḥ al-Mawāqif, 14a-b.
At the end of the chapter, Jurjānī, commenting on Ṭūsī, further illuminates the distinction between both disciplines by importantly clarifying what the difference between innī and limmī proofs amounts to. Jurjānī writes:

“These proofs, i.e., those which he adhered to in the judgments of this chapter, are innīyya demonstrations, which convey existence, i.e., necessitate assent (taṣdīq) that those bodies occur according to the well-known configuration and the previously mentioned circumstances, without including concurrently the cause (ʿilla) for their so being in nafs al-amr. The proofs that convey the necessity of that existence are limmiyyāt and include the causes for those judgments according to both the mind (dhihn) and the external world (khārij). The latter [proofs] are given in Natural Philosophy in the book De caelo. For example: the orbs are simple, but then the simple requires a circular form; hence, it is the cause for the assent as well as for the establishment (thubūt) of the necessity of that judgment in nafs al-amr as long as the subject itself exists. To make this discussion clear: it is the case that the problems of this chapter are common to both Natural Philosophy and this science. The difference is rather due to the [type of] proof as has been shown.”

On this important passage, it is first worth repeating the two points Jamil Ragep has mentioned. First, the remark shows that it is possible for two different sciences to deal with the same subject matter and to prove the same things, since one science can establish a fact in a certain way, whereas the other science can provide the ultimate reason for that fact. Second, by portraying astronomy as a discipline based on observations, and natural philosophy as one relying on a priori premises, the result is

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121 Ibid., 21b-22a. This passage is later quoted by Khāfrī, whom Ragep cites. See Ragep, Tadhkira, vol. 2, 388. I have largely relied on Ragep’s translation.

that astronomy can largely be seen as an undertaking that is largely autonomous and
independent of the philosophical literature concerned with the heavenly bodies.\footnote{123}

Additionally, one can detect in this passage a few crucial distinctions between
innī and limmī proofs. First, innī proofs provide assent (taṣdīq), which is understood as a
judgment that bodies occur according to certain configurations and conditions; it does
not convey the real cause why the judgment holds true in the external world (khārij).
Conversely, limmī proofs provide assent to a judgment, but also establish the real cause
of that judgment in the external world. Second, one can infer from the passage that innī
proof establishes the judgment in the mind (dhihn) only, as opposed to limmī proof
which establishes it in the external world also. This inference can also be confirmed
from his explicit definition of innī proof seen earlier in chapter two that identified it as a
syllogism where the middle term provides the cause for the relation between the
syllogism’s major and minor terms in the mind only.\footnote{124} Conversely, limmī proof, he had
mentioned, furnished the cause for the relation between the terms both in the mind
and in the external world.\footnote{125}

As such, the above two features of innī proof are useful in characterizing the kind
of knowledge that is conveyed by astronomy in those conclusions where it is able to

\footnote{123} Ibid.
\footnote{124} See Ta‘rifāt, 40.
\footnote{125} Ibid.
attain an innī demonstration.\textsuperscript{126} Such a conclusion establishes the judgment that a particular body occurs according to a certain configuration in the mind only; it does not establish the judgment in the external world since it does not provide the real cause of that judgment.\textsuperscript{127}

\[\star \quad \star \quad \star \]

From the foregoing, we get a sense of how Jurjānī understands two basic aspects of astronomy: (1) the object of study in astronomy is the world given to us by ḥiss, as opposed to ḥaqīqa, and (2) the method to prove astronomy’s conclusions is innī demonstration, as opposed to a limmī one. Based on the manner he understands these two aspects above, I would like to register here an observation that can offer a preliminary lesson concerning the important issue of the extent to which astronomy, on his conception, can relate to the actual world.

First, let us not underestimate the novelty of Jurjānī’s move in identifying astronomy’s objects of study as the world given by ḥiss, as opposed to the world understood by ḥaqīqa. Although, since the time of Ptolemy it was known that astronomy establishes, say, the sphericity of the Earth only sensibly,\textsuperscript{128} the kind of explicit demarcation between astronomy and natural philosophy on the basis of a juxtaposition and opposition between ḥiss and ḥaqīqa is rather novel. One does not find

\textsuperscript{126} One example of a conclusion that is attained through an innī proof, for Jurjānī, is the sphericity of the heavens. See the subsequent section which discusses Jurjānī’s understanding of the judgments.

\textsuperscript{127} In addition to the ḥiss-ḥaqīqa dichotomy, another distinction to explore would be ḥaqq-ḥaqīqa. Concerning the latter dichotomy, see İhsân Fazlıoğlu, “Between Reality and Mentality.”

\textsuperscript{128} Ptolemy, Almagest, Bk. I, Chs. 3-7. See above footnote. 35.
such an explicit usage in either Ṭūsī or his commentators preceding Jurjānī. Relatedly, in
the Islamic philosophical tradition, the more common juxtaposition one encounters is
between “according to the reality” (bi-ḥasab al-ḥaqīqa) and “according to the
concept/mind” (bi-ḥasab al-mafhūm/dhihn).129 By utilizing the ḥiss-ḥaqīqa pairing, the
contrast instead is no longer between a real world and a mental one; rather, it is
between investigating the world as it appears and as it actually is. As such, this move
can be seen as a continuation of Jurjānī’s overt efforts to deny an interpretation of
astronomy that is based on a dualistic ontology, one which acknowledges a neat, clear-
cut separation between reality and mentality, inevitably linking astronomy with the
latter.130 Instead, he ends up driving a conceptual wedge in this two-fold ontological
scheme by teasing a subtle distinction between a reality that is actual and one that is
sensible.131 Accordingly, astronomy, for him, is not interested in mental concepts, but
examines the world. Yet, it investigates it not at the level of what is actual, but what is
sensible.

129 For example, Quṭb al-Dīn al-Shirāzī (d. 710/1311) wrote in his commentary on Suhrawardī’s Hikmat al-ishrāq that the problems with Peripatetic definitions raised by Suhrawardī only pertained to the definition of things ‘according to reality’ (bi-ḥasab al-ḥaqīqa); the task of defining things ‘according to concept’ (bi-ḥasab al-mafhūm) was however straightforward. See Khaled El-Rouayheb, “Theology and Logic” in The Oxford Handbook of Islamic Theology, ed. Sabine Schmidtke, p. 10, who is quoting from Shirāzī’s Sharḥ Hikmat al-ishrāq, pp. 60-61.

130 Cf. Fazlıoğlu, “Between Reality and Mentality.”

131 Recently, Nicholas Jardine has argued that instrumentalist interpretations of astronomy emerge only in the context of dualistic ontologies. See Jardine, “The Forging of Modern Realism,” 141-73, esp. 144-153.
Although Jurjānī rejects the extreme skeptical position that identifies astronomy with mentality, by saying that astronomy investigates the sensible as opposed to the actual world, it does introduce a certain kind of meagerness about the interpretations of astronomy – one whose nature should be clarified. This meagerness is fairly obvious in those conclusions of astronomy that lie in the domain of plausibility or probability, where the conclusions possess the possibility of being otherwise. But importantly, even in the case of judgments arrived at by innī demonstrations, there is still room to attribute a certain meagerness to such judgments, and, by extension, to astronomy. This is because, although such a proof may furnish a conclusive judgment, it does not allow astronomy to examine the ultimate, underlying, or actual reality, captured by the word ḥaqīqa. Nor does it allow astronomy to directly establish a judgment in the external world, so that what it establishes are judgments pertaining to the bodies as they appear, not the bodies as they are.

It is important to explain here that this meagerness of knowledge, however, does not lead Jurjānī to another extreme skeptical view, one which would maintain that there is, in principle, an “unbridgeable gulf” between things as they are and the world of appearances, denying that astronomy, being related to the latter, can provide knowledge of the true form of the universe. Rather, for Jurjānī, astronomy is able to

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132 For a discussion of Jurjānī’s use of probable reasoning in astronomy, see below section.
133 This was elaborated above.
convey at least some truths of the real world; the sphericity of the skies or the ordering
of the superior planets, for example. This may appear as a kind of a conundrum. How
is Jurjānī able to maintain consistency between two seemingly opposing ideas, first that
astronomy is interested only in the sensible world and, then, that it can tell us about the
real world?

The key is his understanding of innī proofs. For Jurjānī, it is possible that
astronomy, adhering to its own method of reasoning, can lead to truths of the world
provided, importantly, the argument is of the order of innī demonstration, as opposed
to persuasive signs (amāra). In other words, a conclusion established demonstratively in
astronomy will hold true not simply for the world of appearances, but for the actual
world itself; such a judgment will be describing the real structure of the world. The
reason why a conclusion of an innī proof will accurately describe the real world is borne
from his understanding of innī proof as being conclusive and certain, thus furnishing
judgments which cannot be otherwise. Furthermore, this feature of innī proof, that it
denies the possibility of other alternatives, can be clearly observed in the definition he
offers of innī reasoning in his Taʿrifāt.

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135 See subsequent section.

136 A similar point is made in a recent study that argues the importance of understanding
demonstration quia and propter quid (Latin scholastics’ equivalent of innī and limmī reasoning) in order to
contextualize the status of early modern European astronomy. See Peter Barker and Bernard R. Goldstein,
“Realism and Instrumentalism in Sixteenth Century Astronomy: A Reappraisal,” Perspectives on Science

137 Taʿrifāt, 40 (entry on “burhān” where he defines it as a syllogism built from certain [yaqīn]
premises). See also his view on the two demonstrations outlined earlier in chapter one.
“Innī reasoning – it is one where the middle term in not the cause for the judgment [in the external world], rather it is an expression for the establishment of a claim by falsifying its contrary, for instance, that person who establishes the eternity of intellect by falsifying its temporality with his statement that: the intellect is eternal because if it was temporal, it will be material; because whatever is temporal is preceded by matter.”

Unlike the middle term in a limmī demonstration, which, being the cause, establishes a judgment by deducing it as its effect, the middle term in an innī demonstration amounts to a type of warrant or justification, which establishes its conclusion by denying or falsifying its alternatives. In other words, the investigation of the world in an innī proof begins by revealing the possible alternatives the world (or a particular aspect of the world) could be and eventually winnows these to settle on the unique and actual manner the world is. Insofar as an innī proof is successful in conclusively winnowing multiple hypotheses to a single conclusion, it can furnish a conclusion which cannot be otherwise. To be sure, the proof relies on observational and sensible data, but, insofar as the conclusion cannot be otherwise, it has produced the same conclusion which is conveyed through limmī reasoning. Accordingly, it is

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138 Ta‘rifāt,119.
140 Peter Barker and Bernard R. Goldstein, “Realism and Instrumentalism,”245-6.
141 Jurjānī is not a skeptic concerning the judgments of the senses, and, as seen in the previous chapter, provides a thoroughgoing defense of the credibility of knowledge attained in such a manner. He rejects the extreme skeptical view that because knowledge is attained through senses one can never know the actual reality or is unable to provide certain and true statements. As a case in point, he considers that only an ignoramus would reject the certainty of such a judgment of the senses such as, “fire is hot” or “the moon receives its light from the sun.” Not only does he maintain that judgments of the senses can be true and certain, but in fact he, following Ijī, even includes them among the definitive
possible that *innī* proof, in this mediated way, can conclusively describe the actual world.

This situation can also be explained by recalling that Jurjānī, at a number of places, identifies *innī* proof as reasoning from known effects to cause, contrasting it with *limmī* proof, which amounts to a demonstration of an effect from a cause. The relevant point here is that both *innī* and *limmī* proofs inherently involve some kind of causal relation in the actual world. Although it is *limmī* proof that properly establishes and explains the causal relation in the external world, *innī* proof do implicitly recognize and assume some causal relation in the world, even if the precise nature of that relation remains unclear. The recognition of a kind of causal structure in the external world that *innī* proofs provide ensures that conclusions attained through them describe not simply the world of appearance, but the actual things themselves.

That Jurjānī explicitly maintains the occurrence of at least some judgments in astronomy which are established using *innī* proofs such that they possess certainty or are beyond any doubt, he can consistently uphold that astronomy can provide some conclusive truths about the real world. This has the important implication that, for Jurjānī, although astronomy examines the sensible world, yet it has the ability, at least partly, to describe (though not explain) the world as it is. Incidentally, in the more

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142 See chapter one for at least two instances in his *Sharḥ al-Mawāqif*.

argumentative contexts, Jurjānī can use this particular understanding to defend astronomy by upholding that it can allow one to know the conditions of concretely existing things. In practice, however, as we shall see, he recognizes that conclusive demonstrations can rarely be attained since the premises in the syllogism are not certain but probable, and so, in most of astronomy, one has to be content with less than demonstrative knowledge.

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5.5 The Task of Knowing in Astronomy: Certainty and Probability

5.5.1 Conclusive Reasoning: The Four Judgments of Astronomy

Having noted that Jurjānī upholds that some conclusions of astronomy can be conclusively proven, let us turn to II. 1 where he offers some examples. In this section, he presents four important judgments (ḥukām) that lay down the basic configuration of the celestial bodies, and which, he says, are proven in astronomy. The first judgment (ḥukm) is that the heavens are spherical in motion and shape sensibly. The second is that the earth and the water on its surface are generally spherical sensibly. The third is that the earth and the water on its surface are generally spherical sensibly. The fourth is

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144 The point is explicitly made in his defense of astronomy against the skeptics. For particular instances, see previous chapter.

145 Sharḥ al-Tadhkira, 14a-b. See Tadhkira, II. 1.

146 For a similar presentation of the following judgments in the case of Nisābūrī (who refers to them with the word, usūl, rather than hukm), see R. Morrison, Islam and Science, 79-82.

147 Sharḥ al-Tadhkira, 14a.

148 Ibid., 14b.
that the relation of the earth to the heaven is like the relation of the center of a circle to its circumference, which he takes to mean two things. First, the center of the mass of earth coincides with the center of the universe in accordance with perception. Second, the earth, in its being, is not of any perceptible amount in its relation with the orbs of the fixed stars, and even in its relation with the orbs below it until the orbs of the sun. The fourth, and final, judgment is that earth does not move at all, which he explains means that it does not actually move about a center, from it, or towards it, but is stationary at the center. Jurjānī cautions that since this is a chapter concerned with the heavenly bodies, not the earth and water, the proof of the sphericity of the earth and water and that the earth has no motion is not properly the goal of this chapter. Rather, they are mentioned here only as an ancillary (tabʿan) for they relate to the configuration of the heavenly bodies. Then, as a preemptive measure against those who might not be convinced of the proofs here, he assures that the chapter on earth, which will come later, is the place where those who are doubting (mutaʾammilīn) now about the heavens and its bodies “will witness matters which will provide them affirmation (taṣdiq) concerning its sphericity.” Taṣdiq is a technical, logical term signifying the act of the mind by which it makes a determinate judgment. In his Sharḥ

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149 Ibid.
150 Ibid.
151 Ibid.
152 Ibid.
153 See chapter two for an elaboration.
al-Mawāqif, Jurjānī defines it ordinarily to include both certainties (taṣdīq yaqīnī) and non-certainties (taṣdīq ghayr yaqīnī), since the judgment carries the possibility of being true or false. However, the context here ensures that Jurjānī intends the certain variety, as it is meant to dispel doubts. In that case, astronomy, for him, proves these judgments (sphericity of the heavens) conclusively or beyond any doubt.

In order to prove the sphericity of the heavens, Jurjānī utilizes the evidence of the revolution of the visible stars, which was observed to be circular, and always taking place about the center. Those stars that were further away drew circles ever greater in proportion to their distance until it reaches the largest circle and thereafter circles start to become small again. Based on this, he rejects that the sky can be cylindrical for that will describe circles of equal sizes, nor can it be conical for that does not allow the possibility of smaller circles after it reaches the largest one. Likewise, he considers other possibilities – sphere, two cones such that their bases join and their heads form the two poles, egg-shaped, lentil-shaped – but he then asserts that the falsity (ibṭāl) of these alternatives (iḥtimālāt) necessitate that the sky is spherical. Some other evidences he takes are more doubtful. For instance, that the place of the rising and setting of the stars is the same does not prove the sphericity of the skies, but only proves that the two sides of the circuit on which the stars move join; stars don’t

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155 Sharḥ al-Tadhkira, 15a (corresponding to Tadhkira, II. 1 [1]).
156 Ibid.
157 Ibid.
continue to move in a straight line forever (‘alā al-istiqāma bilā nihāya). Similarly, he objects to the proof taken from the gradual ascent and descent of heavenly bodies, saying that it is a weaker (aḍʿaf) proof than the first since it does not preclude the skies from being a plane. He then considers another view, which held that if the observed sizes of the bodies would have appeared equal at all distances, it would be the strongest (aqwā) proof for the sphericity of the skies. To be sure, the observation is not obtained since objects appear larger at the horizon than they are in the middle of the skies; however, there was an attempt to somewhat rehabilitate the proof, utilizing Ptolemy’s model, and by appealing to the way dense vapors at the horizon refract light to make the bodies look larger than elsewhere. Illustrating with a geometrical presentation, Jurjānī objects that if there were no vapors, it was still possible that the bodies at the horizon will be of a different size than elsewhere, and so this evidence does not provide a complete proof (lā yatimmu al-istidlāl).

Likewise, concerning the evidence taken in the fact that only half the sky is permanently visible to everyone on the earth, he reminds that this alone does not prove the sphericity of the skies but

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158 Ibid.
159 Ibid.
160 Ibid., 15b.
162 Sharḥ al-Tadhkira, 15b.
simply proves that the body of the earth in relation to some of the orbs is not of any perceptible value. Finally, having looked at the different evidences for the sphericity of the skies, he concedes that none provides a proof which is independently certain yet, but importantly adds that doubts, however, can be removed by other considerations.

“None of the mentioned reasons can be considered an independent proof (dalīl mustaqill) for the sphericity of the skies because of what we have mentioned about the possible doubts which oppose sphericity. Along with these mentioned matters, one also has to consider accidents (aʿrāḍ). This is because these arguments alone do not in reality specially combine to establish the desired sphericity, but must be combined with these accidents which we will shortly indicate.”

The accidents, or supplementary arguments, are premised on the general sphericity of the earth and water, the second judgment, which was never in serious dispute. After establishing the sphericity of the earth, Jurjānī turns to the supplementary arguments, declaring, “know that the clearest (aqrab, lit., closest) of [reasoning] which is adhered to in the sphericity of the sky is of two types.” The first amounts to a proof which begins by establishing that the convexity of the skies is similar to the convexity of the earth at a particular latitude; he then extends this reasoning for all latitudes and longitudes to cover all points, and ends by establishing that the surface of the complete sky is parallel to the visible surface of the complete earth. Jurjānī

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163 Ibid., 16b.
164 17a
165 Ibid., 17a-b.
166 Ibid., 18a.
concludes, if one of them is spherical by perception (the earth), the other (sky) will be the same “definitively” (qaṭʿ, or, certainly). In the second argument, Jurjānī uses a particular observation of the astronomers (aṣhāb al-arṣād, lit., practitioners of observation, i.e., observational astronomers), namely, that the sizes of the stars and the distances between them, when calculated from different locations on the earth at a fixed time of the day, are equal. This provides evidence that the distances between the plane of vision and the stars are equal, with respect to perception (ḥiss).

Accordingly, since the earth is spherical, the heavens are likewise. Jurjānī takes these two arguments to be further supported (yuʾayyidu) by another consideration: the instruments of measurement by which one knows the motions of the stars, such as the astrolabe, are built (buniyat) on the premise that the sky is spherical in shape and motion. Thus, when they show that the sphericity of the sky is in accordance with observation, one attains tranquility (iṭmiʿnān), for one knows now that what was assumed (mafrūḍ, i.e., sphericity of sky) actually exists (mawjūd). Jurjānī concludes with a sense of conviction that when these supplementary arguments are joined with the earlier mentioned evidence, they particularize (ikhtaṣṣat) the sphericity and prove it.

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167 Ibid.
168 Ibid.
169 Ibid.
170 Ibid.
171 Ibid.
172 Ibid., 18a-b.
The example of the sphericity of the sky practically illustrates some of the points made earlier regarding the use of demonstrative reasoning in astronomy. Jurjānī clearly sets the goal which is to establish the judgment sensibly and beyond any doubt, i.e., that it cannot be refuted otherwise. He begins by examining different phenomena (stars, etc.), reveals the possibilities for the shape of the sky and then winnows them down to a unique shape, i.e., sphericity. One notices that he takes great care to assess the strength of each evidence, admitting that most of them are not conclusive since they permit other possibilities. The two supplementary arguments, for him, eventually establish the sphericity conclusively. Moreover, the judgment is adduced based upon observational and mathematical considerations proper to the domain of astronomy, as opposed to being based on causes and essences. Importantly, the sphericity of the sky, he says, is not assumed (mafrūḍ) but has existence (wujūd). As such, astronomy has attained a judgment that is true for the real world. In other words, although it can only establish the judgment sensibly, by doing so conclusively, it can attain a result that agrees with the real world. The reason why the result holds true for the real world derives from the necessity that the sky cannot be of any other shape, which, in turn, is grounded on an implicitly assumed causal relation in the world. The sphericity of the sky functions as the proximate, but real, cause (opposed to the physical or metaphysical cause) through which the phenomena such as the circular revolution of stars about one and the same center, etc., can be deduced as its effect.

That the Earth was at the center of the universe and did not possess a perceptible size with respect to the orbs of the fixed stars – forming the third judgment
— was never seriously disputed.\textsuperscript{173} Concerning the fourth judgment, that the earth does not move, Shīrāzī, an earlier commentator of Ṭūsī, had famously argued that the immobility can be proven by purely observational considerations.\textsuperscript{174} The basic idea was if the earth were to move, then objects of different sizes thrown straight up would not land in the same place. Jurjānī explicitly rejects the observational argument, citing the possibility that the air adjacent to the earth could move with the earth.\textsuperscript{175} The situation of adjacent air moving with the earth had been famously compared by Ṭūsī with the situation of ether moving with the orbs, evidenced by the comets, which move with its motion.\textsuperscript{176} Jurjānī rejects the conformity of ether to the orbs, by citing that there is no evidence (\textit{dalāla}) for it and so it cannot be said that comets move either east-to-west or conversely.\textsuperscript{177} Rather the comets’ motions are due to their souls (\textit{nufūs}) which makes them move, at times, parallel to the equinoctial orb, at other times in a non-parallel fashion.\textsuperscript{178} For denying the observational argument, he says, it is enough to raise the possibility of conformity of air to the earth, “regardless of whether either conforms or not.”\textsuperscript{179} Ultimately, Jurjānī determined that the immobility of the earth can only be

\begin{footnotesize}
\begin{enumerate}
\item He treats the judgment standardly at ibid., 18b-19b.
\item On the question of the Earth’s state of rest in the \textit{Tadhkira} tradition, see Ragep, “Ṭūsi and Copernicus: The Earth’s Motion in Context,” \textit{Science in Context}, 145-64. See also Shīrāzī, \textit{Nihāya}, (\textit{maqāla} II, \textit{bāb} 1, \textit{faṣl} 4) and his \textit{Tūḥfa}, (\textit{bāb} II, \textit{faṣl} 4); and Morrison, \textit{Islam and Science}, 80.
\item Ibid., 20a-b.
\item \textit{Tadhkira}, II.1 [6] line 13. See Ragep, ““Ṭūsi and Copernicus.”
\item \textit{Sharḥ al-Tadhkira}, 20a-b.
\item Ibid., 20b.
\item Ibid.
\end{enumerate}
\end{footnotesize}
established by invoking an argument from natural philosophy, namely, that the earth
has a principle of rectilinear motion which prevents it from moving naturally in a circular
motion.\textsuperscript{180}

“One may say that this problem is shared between natural
philosophy and mathematics, and the difference is with respect to
demonstration. But when it is established by means of a limmī
demonstration which he has mentioned, this becomes a problem
of natural philosophy, not mathematics. Accordingly, you will see
in mathematics that, in shared problems such as the sphericity of
the earth and sky, they avoid (yataḥāshūn) limmiyya proofs, and
adhere in it with matters based on observation and consideration
(al-raṣad waʾl-iʿtibār). It is true that when a problem is not shared
it is permissible (jāza) to establish it by premises (muqaddamāt)
contained in natural philosophy.”\textsuperscript{181}

The remark displays a candid admission on the part of Jurjānī: the judgment of
the immobility of the earth can only be established by borrowing from natural
philosophy – which may appear like a disciplinary violation. He does, however, further
clarify that this is actually permissible since it is not a shared problem. Moreover, he
emphasizes, the immobility of the earth is an exception, being a problem of only natural
philosophy. However being an exception, it precisely proves the universal rule:
astronomy, even in the case of shared problems, and even at the level of practice, can
avowedly exercise a certain independence from natural philosophy in the form of

\textsuperscript{180} Ibid., 20b.
\textsuperscript{181} Ibid.
eschewing the falsafi canons of reasoning, while remaining true to its method and principles based on observations and mathematical considerations.\textsuperscript{182}

Additionally, the remark indicates a more general point about the attainability of knowledge in astronomy. When astronomy, through its methods, was not able to conclusively establish the judgment of Earth’s immobility, it was still possible to hold the judgment as conclusive since it had already been proven by natural philosophy, forming the latter’s proper problem, and from where it was eventually borrowed. In this case, although astronomy was incapable of attaining certainty about the judgment, nevertheless it had recourse to a science which could establish it conclusively. However, in astronomy proper (or at least most of it), the questions lie beyond the purview of natural philosophy, which has nothing conclusive to say about them. And if the only reasoning available to astronomy is probable or plausible (i.e., not conclusive), then that is the only type of knowledge which is possible in such problems.

It is important to understand the scope and value of such non-demonstrative knowledge in astronomy according to Jurjānī. Although he does claim that some parts of astronomy, for example, the above judgments, are of the order of demonstrations. Nevertheless, the more typical domain of astronomy that he sets out in his work, as we shall see, is characterized by plausible and probable conclusions. Though demonstration may remain the ultimate (and elusive) goal, the more immediate and typical ideal of astronomical knowledge that he lays out is not certainty, but rather those hypotheses

\textsuperscript{182} Cf. Ragep, \textit{Tadhkira}, vol. 2, 382.
which are both able to account for the phenomena and are consistent with the physical principles of the time.\textsuperscript{183}

5.5.2 Models: Criteria and Function

Any conception of astronomy must include an interpretation of models used to account for the motion of bodies.\textsuperscript{184} The question of the reality, or lack thereof, of the models remains largely intractable according to Jurjānī for he does not offer any explicit statement in this regard.\textsuperscript{185} That said, he does offer several, brief remarks that touch on the role of models, their requirements, and perhaps some criteria that may be utilized in selecting one over another.

For Jurjānī, there are real celestial bodies performing real motions in the cosmos. In this regard, he would reject the radical view, one which would place the celestial world altogether beyond our ken, denying that we cannot even know that it includes real bodies with real motions.\textsuperscript{186} Moreover, although in the \textit{Sharḥ al-Mawāqif} he had rhetorically mentioned the possibility of explaining the irregularities of motions by a succession of particular volitions of orbs,\textsuperscript{187} that idea remains a theoretical possibility, but in practice is exercised nowhere in his astronomical work. Instead, Jurjānī takes the


\textsuperscript{185} Cf. Ragep, \textit{Tadhkira}, 46-53.

\textsuperscript{186} Cf., Jardine, “The Forging of Modern Realism,” 150-1.

\textsuperscript{187} \textit{Sharḥ al-Mawāqif}, vol. 7, 133.
bodies to abide by the principle of uniform circular motion, a principle which he explicitly understands to have grounding in philosophy (ḥikma). He combines this understanding of motion with his view that what one attains through observations in astronomy is the apparent motions and positions of real bodies. Moreover, this motion appears irregular to the observer since sometimes the bodies appear to speed up or slow down, turn around, become stationary, etc. Given this discrepancy between the apparent irregular motions of the bodies given through observations and the uniform circular motion dictated by the physical principles, the task of astronomy is precisely to remove this inconsistency. For Jurjānī, the task is attained by providing models (uṣūl) on which the apparently irregular motions can be based, such that they bring about their uniformity in themselves. This basic picture can be confirmed by his following brief remarks:

Text 1. “On basing the apparently irregular motions, known through observation, on models that bring about their uniformity in themselves (fī anfusihā), and their irregularity with respect to appearance (bī-ḥasab al-ruʿya) for us in terms of fastness and slowness ...”

Text 2. “Only some of these irregular motions can be accounted by these models because irregularities like equant and alignment points are not solved with these models as you will come to know.”

Text 3. “These are the models and rules (qawānīn) that should be known so that one is informed about the conditions of the orbs,

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188 See below.
189 Sharḥ al-Tadhkira, 43a.
190 Ibid.
and that irregularities in their motion with respect to appearance is upon a form that conforms to the principles (qawā‘id) of philosophy (hikma).”

**Text 4.** “The benefit of mentioning them based on conception (taṣwīr, i.e., as opposed to mentioning their proofs) is that by knowing them it eases in conceptualizing these irregularities conforming to these principles (qawā‘id).”

The passages reveal that Jurjānī understands models to meet two core conditions. First, a model must be able to adequately account for the phenomena, specifically, that it should be useful in systematizing and predicting the apparent positions and motions of the celestial bodies. In modern parlance, a model should be empirically adequate. Second, it should be consistent with an understanding of celestial bodies as objects that properly obey certain physical principles, most importantly that of uniform circular motion. In this sense, it should be physically consistent. While these two conditions undergird the model-making endeavor for him (as for Ṭūsī), he accepts that they do not necessarily lead to a unique configuration (model) of the world. Indeed, the point had long before been conceded by Ptolemy that the irregular solar motion could be tackled equally well by employing the epicycle or the

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191 Ibid., 49b.
192 Ibid.
194 He rejects the homocentric sphere cosmology dictated by Aristotelian natural philosophy, and instead is willing to accept epicycles and eccentric but not entertain any further compromises. Cf. Ragep, *Tadhkira*, 48.
eccentric model which are mathematically equivalent, but, when interpreted realistically, are different.\textsuperscript{196} The point is echoed by Ṭūsī, and by Jurjānī who confirms, “by means of either of the two models in general, the conditions of the sun known through observation can be regulated.”\textsuperscript{197} The possibility of multiple models meant that alternative explanations of reality were possible; it marked a domain of astronomy where definitive conclusions could not be attained.

The mathematical equivalence of the epicycle and eccentric model leads to the well-known problem of observational equivalence.\textsuperscript{198} Given a situation where there are more than one models which are both empirically adequate and physically consistent, how should one choose among them? This was the key question at the heart of the model-making endeavor. Unlike the case of demonstrative conclusions in astronomy, there are no observationally-based or mathematical criteria which can conclusively deny alternatives and winnow them to a unique position.\textsuperscript{199} In the absence of such quantitative criteria, the question was how to choose? On most topics, as we shall see below, he invariably adopts the more traditional and conservative position. Importantly, the implicit distinction that Jurjānī draws throughout the work is between quantitative considerations based on observations and mathematical reasoning, and certain other

\begin{itemize}
\item \textsuperscript{197} Ibid., 51a.
\item \textsuperscript{199} Cf. Barker and Goldstein, “Realism and Instrumentalism in Sixteenth Century Astronomy,” 252.
\end{itemize}
qualitative or physical considerations having to do with notions, such as simplicity, appropriateness, economy, and the grounding of astronomy and astronomical thinking in other disciplines.200

5.5.3 Orbs: Definition and the Number of Orbs

Jurjānī speaks about the orbs at a number of places explaining their definition, the need for them, the standard number of orbs that are taken, and importantly, the criterion for deciding upon the number of orbs. The first issue concerns the definition of orbs and its implications.201 Jurjānī, following Ṭūsī, defines orb as a spherical solid bounded by two parallel surfaces having the same center, where the outer surface is called convex and the other concave.202 Jurjānī explains that what is sufficient in the definition is to say that there is no actual difference in the distance between the outer and inner surface, but rather it is a spherical solid of equal thickness.203 Accordingly, he clarifies that sometimes the inner surface is not taken into account in the definition of orb as in the case of epicycles; it is enough to refer to it as a spherical encompassing solid whose distance from the surface to the center is equal in all directions.204 Jurjānī


201 On orbs, see Willy Hartner, “Falak,” in Encyclopedia of Islam, 2nd ed. 2: 761-63. See also the more careful remarks in Ragep’s commentary on I.1 [15], Tadhkira, 378.

202 Sharḥ al-Tadhkıra, 10b. Tadhkıra, I.1 [15].

203 Ibid.

204 Ibid.
recognizes that a certain objection can be raised that the definition allows for the
sphere of fire, as well as the sphere of the other elements, to be called an orb. The
objector might maintain that the outer surface of the fire’s sphere is dependent (tābi‘) on
the inner surface of the moon’s sphere; since the latter is properly spherical, the
former by coincidence (ittifāq) will be too. Being spherical, the sphere of fire will fulfill
the criteria of an orb. By the same logic, since the inner surface of the fire’s sphere
touches the outer surface of the air’s sphere, the objector may argue that the sphere of
air, and, by extension, the sphere of remaining elements also fulfill the criteria of an
orb.

In his defense, Jurjānī concedes that in the case of the sphere of fire, it is not
implausible (lā ba‘īd) to call it an orb; however, he also adds a further remark, that
calling it so is contrary to the well-known opinion (khilāf al-mashhūr). But he explicitly
rejects the possibility in the case of other elements by citing that the key consideration
in the definition of an orb is that the distance between the surface and the center must
be equal in reality (bī ḥasab al-ḥaqīqa), as in a real sphere, not just with respect to
perception (bī ḥasab al-ḥiss), as in these elements. In passing, it is worth noting that
Jurjānī again utilizes the distinction between ḥiss and ḥaqīqa, this time, to clarify an
important definitional concept. In the end, he explains that the most preferred view on

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205 Ibid.
206 Ibid.
207 Ibid.
208 Ibid.
the definition of orb according to the astronomers is to say that it is a spherical body which does not accept of tearing (kharq) or burning (ināra).²⁰⁹

Having provided the definition of orb, he turns at II.2²¹⁰ to consider the number of orbs and the need for establishing them. The starting point of the inquiry for astronomers was to account for the motion of the bodies in the cosmos. To that end, they established nine nested orbs on first consideration: one orb each for the five vacillating planets (Saturn, Jupiter, Mars, Venus and Mercury), one each for the sun and the moon, one orb to account for the daily, fast, westward motion of all bodies, and another to account for their slower, eastward motion.²¹¹ Jurjānī narrates that on closer inspection, the astronomers found that the motion of the planets was irregular, and so, in order to account for the irregular motions they devised multiple orbs for each of the original orb of the planets.²¹² In other words, they maintained a set of nine orbs to account for the motion of the cosmos as a whole. In this context, there are two topics of interest. First is a point simply adumbrated here by Jurjānī, but explained later, that the requirement of multiple orbs is enforced by careful observations which reveal irregular motions for the planets. And the purpose of orbs is to regulate (indībāt) these motions

²⁰⁹ Ibid.
²¹⁰ Tadhkira, II.2 (“On the Arrangement and Order of the Bodies”).
²¹¹ Sharḥ al-Tadhkira, 22a (drawing on Ṭūsī II.2 [1-2]).
²¹² Ibid.
which are non-uniform in themselves (lā tashābuha fi anfusihā).\textsuperscript{213} In other words, orbs function to regulate the motions and make them uniform.\textsuperscript{214}

The second issue that Jurjānī focuses on is the question of how many initial orbs (that is to say, the set of orbs, not the multiple orbs each set will in turn contain) would be necessary to account for the motions of the heavens as a whole. Ṭūsī had adhered to the traditional scheme by establishing nine orbs, two orbs for the primary and secondary motion, and seven orbs for the two luminaries and the five planets.\textsuperscript{215} Since the stars did not have an additional motion other than the first two, one of the first two orbs would suffice for them. Ṭūsī had chosen the eighth orb moving with the slow motion as the place of the fixed stars, while admitting that their being on multiple orbs was possible.\textsuperscript{216} Jurjānī abides by this scheme of nine orbs while maintaining, like Ṭūsī, that it is conceivable that the stars may occur on separate orbs. Crucially, he takes to explain the reason why astronomers have not established an excess (faḍl) of orbs:

“However, they have not established in them [i.e., stars] any unnecessary excess (faḍl) because what is more appropriate (ansaba) in the noble bodies (al-ajrām al-karīma) is their being devoid of any excess. Surely, this premise (muqaddama) is [only]...”

\textsuperscript{213} Ibid., 23a.

\textsuperscript{214} Jurjānī does not mention here whether the orbs actually exist or not. It is possible that the defining feature of orbs, as being able to regularize the apparently irregular motion, may be truth-related, but again he does not provide any clear indication to that end. Instead Jurjānī appears content to describe orbs in terms of their capacity to account for the motions and to do so in a manner that is consistent with the physical requirement of bodies possessing uniform circular motion. Cf. his introduction where he cites that each of the seven planets is on an orb (falak) praising its Creator. See Sharḥ al-Tadhkira, 1b.

\textsuperscript{215} Tadhkira, II.2.

\textsuperscript{216} Ibid., II.2. [3].
satisfying (iqnāʿiyya, or persuasive). Thus, there is no certainty (lā jazm) regarding [orbs] not being more.”

This provides an important example where Jurjānī clearly states a criterion other than success in saving the phenomena that can be utilized to make a choice between rival claims. The criterion can be called the ‘principle of economy’ which, applied in this setting, means that the hypothesis which utilizes the least amount of orbs should be preferred. The principle can be seen to represent a particular consideration, one which is not mathematical, quantitative, or based on observations, but is rather qualitative and theological or metaphysical in nature. Furthermore, it is worth noting that Jurjānī also attempts to justify the principle using elements of theology and metaphysics. For Jurjānī, it is because the celestial bodies possess noble souls and being devoid of superfluous things is more suitable (ansaba) to their nobility. The theological ground of the principle of economy then relies on the tenet of suitability or adequacy (munāsaba), not certainty. Finally, this concern of Jurjānī to flag a conclusion as being certain or not that appears repeatedly throughout his work, at face value, is useful in highlighting the conclusive and non-conclusive domains of astronomy. But one may recall from Jurjānī’s earlier defense against the skeptics, there was then a certain suspicion attached to the claim that the mathematical sciences (astronomy, and

217 Sharḥ al-Tadhkira, 23a.
219 The concept of no unnecessary excess in nature traces back to Aristotle’s Physics VIII 259a.
220 On the use of the legal principle, munāsaba, in Niṣābūrī’s astronomy, see Robert Morrison, Islam and Science, 86.
even geometry) could provide certainty. Accordingly, that context may have provided some motivation on part of Jurjānī to adopt a rather reflective and measured approach in his comments about astronomy here.

Having explained that orbs cannot be more than nine, Jurjānī turns to consider the other possibility, namely, whether they can be less than nine. The possibility that the cosmos could be explained by eight nested orbs was mentioned by Ṭūsī himself; Jurjānī first proceeds to clarify this possible scheme. The ninth orb providing the daily, fast motion is discarded, and the group of eight orbs beginning from the orb of the fixed stars is connected with a single soul which moves them with the cosmos’ daily motion. And separate souls are simultaneously related to each of the eight orbs providing them their respective motions. Jurjānī states that upon this assumption the total number of orbs will be eight. Importantly, he adds, “thus, in this case, there is no certainty (lā jazm) regarding [orbs] not being less than nine, just like there was no certainty in them being more than nine, as mentioned.” Again, the conclusion is not certain, though he does not provide any criteria for adhering to the nine orb scheme.

There was also another possibility that the cosmos could be accounted for by seven nested orbs, which was a possibility that, Jurjānī tells us, Shīrāzī had earlier

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221 See previous chapter.

222 Tadhkira, II.2 [3]. For elaboration and discussion of the scheme in the context of later commentators, see Ragep’s commentary, 389-90.

223 Sharḥ al-Tadhkira, 23a-b.

224 Ibid., 23b.
proposed to Ṣūsī himself, and which Jurjānī now takes to clarify. The fixed stars could be affixed to the outer surface of the Saturn’s orb, and a soul could be related to that part of Saturn’s orb to move the fixed stars with their proper motion. Another soul could be related to the group of the seven orbs providing them with the cosmos’ daily motion. Jurjānī mentions this possibility by quoting Shīrāzi, whom he tells had proceeded to discuss it with Ṣūsī himself. He repeats the standard anecdote that the latter had “found it pleasing” and had “commended” Shīrāzī (istaḥsanahu wa-athnā ʿalāyya). One can observe that, although Jurjānī stands by the more conservative position on orbs being nine, he recognizes, rather seeks to draw attention to the possibility of fewer orbs in a positive manner. The mood is more of appreciation rather than exasperation.

5.5.4 Distances and Sizes of the Planets:

The question of the distances of the different orbs from the earth and the sizes of the planets was one that dealt directly with describing the real world. Unlike the assumed lines, circles, points, etc. in the cosmos by means of which one could know the conditions of concrete bodies, the subject of distances and sizes dealt directly with reality. The bodies were real and so the distances between them and their sizes were actual, not simply considerations of the mind (iʿtibārāt). At IV.5 of the Tadhkira, Ṣūsī had

225 Ibid.
proposed adopting a scheme for determining distances, according to which the farthest distance of each planet is made the nearest distance of the planet above it. Jurjānī accepts the proposal as a useful adoption. But the issue of attainability of knowledge regarding the actual distances and sizes elicits a remarkable response from Jurjānī, which helps to explain not just the particular discussion, but also somewhat sheds light on that more general domain of astronomy which dealt with plausible or probable conclusions. He writes:

“It is possible that the distances, according to nafs al-amr, be more than the adopted distances, or it is permissible that between the orbs of the apparent planets whose motions are known are other orbs that carry planets which are not visible due to their small size. They deem that what is most excellent is to say that human power is incapable of perceiving the distances and sizes of the heavenly bodies, according to what they are in themselves (mā hiya ‘alayhī fī anfusihā); rather no one knows them like that except for their Creator. So the scholars of this science strove in this to follow a path which leads the seekers of wisdom (mustarshidīn) towards the real objective, which is to know in a general sense the majesty of God and His greatness and might through the noble bodies He has created and by their conditions which He has set up to follow upon an order.

Hence, from there they sought leniency, and made the farthest distance of each planet the nearest distance of the planet above it. They did not pay heed in this to the radius of the planets or with something whose measure is not known to us, for example, lunar nodes. They also did not carefully scrutinize some of the broken locations (al-mawādi‘ al-maksūr), not due to any shortcomings on their part in this science; but rather due to their knowledge that addressing these cases will not benefit one to reach the reality of the situation (ḥaqīqat al-ḥāl). The recourse in these matters is towards incapacity (‘ijz) and deficiency (al-quṣūr) as the final

See also Rageps’s corresponding commentary, 517-24.
outcome, while accepting the manifestation of the lights of
greatness and majesty for the sights of the people of perfection
(āṣḥāb al-kamāl). Success is from God, the Most High.”229

For Jurjānī, one has to draw a distinction between the distances and sizes in nafs
al-amr from those adopted in astronomy. He emphasizes that astronomy cannot attain
to the knowledge of the real distances (or sizes), in part, due to the feebleness of human
intellect and their observational capacities. He offers this as the basic rationale to clarify
why astronomers inevitably proceed to make ad-hoc generalizations (such as, ignoring
the radius of the planets, etc.) in order to solve the problem. For their purpose at hand
is not to solve the problem conclusively, which they deem is impossible; but rather, it is
to provide an approximate solution which can conduce to a more fundamental
objective, which is to cultivate awe regarding divine majesty and beauty. On the other
hand, he states that the perfect and actual solution to the problem of distances and
sizes is known only to God, and likewise, to the ‘people of perfection’, presumably
referring to those more appropriately placed with God.230

One can utilize Jurjānī’ s remarks regarding the distances and sizes of bodies to
draw parallels with other, partly similar, problems in astronomy: for instance, the
question of explaining the motions of bodies, or assigning the number of initial orbs
required to configure the universe. Unlike the geometrical aspects of astronomy, such
as positing and manipulating lines, circles, etc. which, Jurjānī holds, are properly mental

229 Sharḥ al-Tadhkira, 155b-156a.
considerations that can describe the conditions of concrete bodies, these problems are related more directly to describing an aspect of the world. The distinction that Jurjānī explicitly draws here between knowing the distances in themselves and the adopted distances of astronomy reveals that knowing something can occur at two distinct levels. It is plausible that, for him, just like the true and actual distances cannot be definitively attained by astronomy, likewise the true and real motions of bodies in themselves may also not be knowable with certainty. To this one may add other topics where astronomy can generate only probable, not conclusive, knowledge (number of orbs, for example). This can readily explain why Jurjānī does not view the possibility of different models to account for the motions (epicycle or eccentric), or the number of orbs to configure the world (nine-nested orbs, eight, or seven) to constitute a grave problem for astronomy. Having conceded that the actual solution to these problems cannot be known conclusively, he can lower the goal of astronomy to attaining a lesser kind of knowledge, one which does not have to be apodictically certain or “beyond any doubt,” but can be plausible, probable, or commonly accepted. In terms of solving the problem, the solution is then not definitive, but approximate.

It is this kind of knowledge which is approximate that provides, for Jurjānī, the more typical solution to a number of problems. This is supported when one considers, at several places he takes to explicitly mention, himself, that the solution is satisfying

(iqnāʿīyya), is not certain (lā jazm), or can entertain other possibilities. Moreover, looking at those examples closely also reveals certain key features that Jurjānī takes as a requirement to be considered a solution, even if only approximate. In other words, it sheds light on how Jurjānī understands this approximate knowledge central to astronomy. Three features seem to be particularly key in his understanding. First, a solution should be able to account for the apparent motions and positions of the bodies. Second, it should be consistent with certain key physical principles, most importantly, the impossibility of void, which is utilized to account for the distances and sizes of the bodies, among other things, and uniform circular motion, which functions as the foundation for model making. The third refers to a more diffused, and rather interesting, feature which amounts to choosing between rival hypotheses by utilizing certain qualitative considerations dealing with simplicity, economy, and the drawing of parallels between reasoning in astronomy and in other disciplines. Though Jurjānī varies in the attention he gives to these considerations, in those cases where he seeks to justify or ground the criterion, it becomes interesting to speculate that the criterion in some sense may be truth-related. In that case, it arguably strengthens the case of astronomy’s relation with reality.

232 Apart from the examples discussed above, the following will provide more instances of this general trend, and thereby substantiate the points made in this paragraph.
Determining the Relative Positioning of the Planets and the Sun: Conclusive and Plausible Reasoning

The question of the relative positioning of the bodies involved determining the relative order of the five planets, sun, and the moon from the earth. Jurjānī’s remarks touch on three related issues: [1] the observational criteria taken for determining such an order, [2] the inadequacy of that criterion in establishing the position of the sun, [3] an alternative, non-observational criteria through which the sun’s position can be established as well as its implication in terms of the strength of that conclusion.233

Concerning the first issue, Jurjānī draws on the standard stock of astronomical knowledge to provide two observational criteria for establishing the relative positioning of the bodies.234 Only the first criterion was present in Ṭūsī, which is that of occultation, according to which that body which is occulted (hidden) is relatively further than that which occults (hides).235 Jurjānī identifies the second criteria as the evidence of parallax: the greater the parallax a body displays, the nearer it is to the observer, while a lesser parallax, or its non-existence, indicates that the body is further away.236 Based on the criteria, he explains that one attains the traditional ordering of bodies starting from the

233 *Sharḥ al-Tadhkira*, 24a-25a. The section corresponds to *Tadhkira*, II.2 [4-5].
234 *Sharḥ al-Tadhkira*, 24a.
235 *Tadhkira*, II.2 [4].
furthest to the nearest as follows: the fixed stars, Saturn, Jupiter, Mars, Venus, Mercury, Moon. 237

Jurjānī then considers the position of the sun, citing that the evidence of occultation shows it to be above the moon, while the evidence of parallax indicates it to be below the orbs of the fixed stars and the superior planets (Saturn, Jupiter, and Mars).238 Beyond this however its position remains unclear, for, he tells us, there is doubt (ishtibāḥ) where it stands relative to Mercury and Venus. The reason for the doubt, he says, is because both methods (occultation and parallax) fail to determine its relative position. Occultation fails since one cannot conceive of the sun occulting the two planets or being occulted by them, for the two planets given their proximity to the sun would simply burn at conjunction.239 Similarly, one does not know whether the parallax of the two planets is greater or lesser than that of the sun.240 The reason, he explains, is because the instruments that are utilized to detect parallax are erected at the surface at noon. But at that time, the two planets are not visible, being as they are perpetually with the sun by a small distance. Alternatively, when the two planets reach noon, the sun is above the horizon either in the east or the west. Thus, both are not seen at all. He concludes, importantly, that the failure of both methods amount to a lack of certainty in knowing the relative position of the sun: “when it was not possible for

\[237\] Sharḥ al-Tadhkira, 24a.
\[238\] Ibid.
\[239\] Ibid.
\[240\] Ibid.
them to know this problem with certainty (ʿalā sabīl al-jazm) by one of the two methods (bī aḥad al-ṭarīqayn), they turned to another method which was persuasive (iqnāʿiyya).”

The remark makes obvious that, for Jurjānī, the ordering of the superior planets, at least, is certain. It means that at least some kinds of observational considerations (parallax and occultation) can lead to conclusive judgments, and so describe the real world. It is also worth noting that this is an example of a conclusion where natural philosophy sheds no light, and so is unlike the earlier judgments such as the sphericity of the sky which had parallel corroboration from another science. To be sure, the problem is then properly astronomical and proved conclusively, according to Jurjānī, by properly astronomical methods. The remark also suggests a significant point regarding methodology: the starting point of the astronomers is to aim for a definitive conclusion, that is to say, the goal is to describe the real world, not simply a world of appearance. Only when faced with an insurmountable obstacle to attain their aim, do they fall back on reasoning that may be convincing, but not certain. Finally, the remark is yet another example of his deliberate, measured approach in the form of demarcating whether the reasoning is conclusive or plausible.

Concerning the position of the sun, Jurjānī, following the same line of thinking as Ṭūsī, places it in the middle orb below the three upper planets, above the two lower planets and the moon. Ṭūsī had justified the position by invoking a certain principle of

241 Ibid.
242 Ibid., 24a-b.
appropriateness (istiḥsān), deeming it to be appropriate for it leads to an elegant arrangement inasmuch as the six were connected to it - the upper planets in certain way, the lower in another, and the moon in yet another. Jurjānī endorses the appropriateness (istiḥsān) by likening the sun’s medial position as the “pendant in the middle of the universe.” Ṭūsī had provided two further evidences: first, that the known distance between the sun from the earth corresponds with this positioning, and, second, that some reports claim to have observed Venus occulting the sun. When Jurjānī turns to consider them, he continues to utilize the terminology of istiḥsān (unlike Ṭūsī), citing that this istiḥsān can be supported (taʾyīd) by the fact of the sun’s distance and by the report of Venus’ transit. Here we are presented with another non-observational, non-mathematical criterion called the ‘principle of appropriateness’ (istiḥsān) employed by Jurjānī to make a decision regarding opposing choices. Unlike the principle of economy, which can be taken to have grounding in theology or metaphysics, istiḥsān is properly a technical term used in Islamic legal theory. Being a derivation of the root word ḥ-s-n, istiḥsān literally means considering something good, preferable and

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245 Tadhkira, II.2 [4]

246 On the reports of Venus’s transit, see Bernard Goldstein, “Some Medieval Reports of Venus and Mercury Transits,” Centaurus 14 (1969): 49-59. See also, Ragep’s commentary, 391; Shīrāzī, Nihāya, II.2, f. 49b.
beautiful. As a legal term, its basic idea is a jurist’s preference for one ruling over another, though there were variations among different schools of law (and jurists) over what constitutes the basis of one preference (e.g., whether the preference is based on another recognized proof of Shar’īa, or based on one qiyās over another, etc.).

Istiḥsān, or juristic preference, as a legal principle, had a robust grounding in legal theory (uṣūl al-fiqh), which, in turn, would have provided it enough of a justification to be employed in other disciplines. That may explain why neither Ṭūsī, nor Jurjānī, display any concern here to justify the principle, but simply proceed directly to utilize it (in stark contrast to Jurjānī’s justification of the principle of economy). One also notes that they understand the notion of preference in line with its lexical meaning of beautiful or good, which can be seen in their emphasis on the aspect of elegance and proportion as a reason to place the sun in the middle orb. The novelty of the situation should not be underestimated. It was common enough to use arguments from elegance to place the sun in the middle. The key, and rather striking, point is that these Islamic astronomers can draw parallels with legal reasonings to ground the elegance of the cosmos.

For Jurjānī, appealing to the idea of appropriateness, however, does not render the conclusion certain, but is only satisfying. This is confirmed by his earlier admission

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248 Ibid.
that there is no route to certainty in this problem, and the only reasoning available is *iqnāʾiyya* (persuasive). He repeats a similar idea at the end of the section, citing that the positioning of the bodies that has been mentioned is a “well-known opinion (*mashhūr*) according to the majority (*jumhūr*)”\(^{251}\). In his *Sharḥ al-Mawāqif*, Jurjānī includes the well-known opinion (*mashhūr*) as one of the four types of doubtful premises, that is, premises admitting of some doubt.\(^{252}\) He juxtaposes the doubtful premises with categorical premises which he takes as those that possess certainty or are beyond doubt, and can be utilized as a basis for demonstrations.\(^{253}\) Accordingly, the fact that the positioning of bodies is a well-known opinion (*mashhūr*) means that, though the opinion is generally accepted by a large number of people, the conclusion is not definitive, and, on the contrary, allows for alternative possibilities.

5.5.6 Explaining Variations on the Lunar Surface: Astronomy as Approximate Knowledge

Explaining the variations on the surface of the moon\(^{254}\) provides a rather lucid example to see that, for Jurjānī, the standard of astronomical knowledge is of an approximate kind, one which can accept multiple explanations.\(^{255}\) The dilemma for the Islamic astronomers was how to explain the lunar markings, which were the variations

\(^{251}\) 25a

\(^{252}\) *Sharḥ al-Mawāqif*, vol. 2, 43.

\(^{253}\) Ibid., 36-7.

\(^{254}\) *Tadhkira*, II.7 [23].

\(^{255}\) *Sharḥ al-Tadhkira*, 61a (paginated incorrectly as 46a).
in the parts of the lunar surface when receiving light. Jurjānī begins by explicitly rejecting the view that the lunar markings are due to variations in the composition of the moon. The reason he cites is that the lunar surface cannot be “composed of parts of different essence” (māhiyya) because the “celestial bodies are simple according to them.”\textsuperscript{256} One notes that for an explanation to be acceptable for Jurjānī, it must conform to the physical principle of the simplicity of celestial bodies.

Having rejected this theory, Jurjānī then sets out to provide several possibilities for explaining the lunar markings. He first cites the option Ṭūsī had mused, according to which there are various other bodies in the lunar epicycle that do not accept illumination equally.\textsuperscript{257} Jurjānī goes on to explain that the ability of such bodies to accept illumination may be different because they may vary in their essence (māhiyya).\textsuperscript{258} Or, it may be different because the bodies may differ in their position: for some may fit in the subtle places in the epicycle, and being closer to the moon, will be less eclipsing (or obscuring); others may occur in the larger spaces of the epicycle and, being further away, are more eclipsing. Accordingly, the light falling on the face of the moon will differ in terms of intensity.\textsuperscript{259}

Next, Jurjānī goes beyond Ṭūsī to offer four other explanations. The first reason he cites is that rays reflect from the encompassing water or the sphere of the vapor

\textsuperscript{256} Ibid.
\textsuperscript{257} Tadhkira, II.7 [23].
\textsuperscript{258} Sharḥ al-Tadhkira, 61a.
\textsuperscript{259} Ibid.
because the polish of their surface reflects clearly, while the rays do not reflect likewise from the one-fourth surface that is inhabited due to its roughness. Thus, the portion of the face of the moon illuminated by means of rays falling on it in a straight line and rays being reflected together will be less than the illumination by means of straight rays only. A second reason, he quotes, is that the face of the moon could be like a mirror wherein the observer sees a resemblance of the forms reflected by the earth and water (buildings, colors, islands, etc.), though they may not be clearly recognizable to him.

Another reason is to say that the lunar markings are an accidental matter which has a relation with the observer; there is no real difference on the plane of the moon.

Finally, he cites that some have gone on to argue that there are dense (ghalīz) vapors which prevent the rays from reaching all the parts of the lunar plane. He concludes by saying that all these are “acceptable” reasons for explaining this problem (kullu manẓūr fīhi).

One notes that Jurjānī does not set stiff conditions for a view to count as a valid explanation. The criterion he takes is simply that an explanation should not violate the physical principles, particularly the simplicity of orbs. To this, one may add the obvious condition that it should not introduce anything which would prevent ‘saving the

\[\text{\textsuperscript{260} Ibid.}\]
\[\text{\textsuperscript{261} Ibid.}\]
\[\text{\textsuperscript{262} Ibid.}\]
\[\text{\textsuperscript{263} Ibid.}\]
\[\text{\textsuperscript{264} Ibid.}\]
phenomena’. That there are multiple explanations that can fulfill these conditions causes no concern for him; rather, he takes such explanations to be equally valid and acceptable. This indicates that the standard of astronomical explanation Jurjānī sets in this instance is not of a demonstrative kind (apprehension of first principles and their implications), but of an approximate kind, one which includes probable or acceptable reasons. The goal is to not to attain apodictic certainty, but it is sufficient to offer a reason which can save the phenomena and is consistent with the physical principles of the time.

5.5.7 The Dynamics of Celestial Motion: Qualitative Considerations in Astronomy

The question of the dynamics of celestial motion\(^{265}\) provides a striking example to see other kinds of qualitative (non-mathematical, non-observational) considerations that Jurjānī is willing to entertain in astronomy. Besides the intrinsic value of his remarks in revealing aspects of his astronomical thinking, his statement also provides an interesting solution to the problem of how an orb could move another. The following will illustrate his response as a solution to the dynamical problem, before presenting his full statement and looking more closely at his reasoning.\(^{266}\)

Although the dynamic question was about understanding how an orb could move another, the specific problem lies in understanding the motions of a particular

\(^{265}\) Tadhkira, II.4 [6-7].

\(^{266}\) The following account of the dynamical problem is largely based on Ragep’s commentary on II.4 [6-7], Tadhkira, 408-10.
kind of orb. A first kind was when the enclosing and the encompassing orbs possessed
different centers and different axes of rotation, as is the case of epicycles and
eccentrics. Understanding how one orb moves another in this case was rather
unproblematic; eccentric orbs and epicycles were simply carried inside other orbs with
different centers and would move when the encompassing orbs moved. In fact, as
Jurjānī says, these enclosed orbs would move necessarily; since if they did not move
while the enclosing orb moved, it would lead to consequences like tearing and mending,
violating the principles of celestial bodies.\(^{267}\)

A more acute situation was of understanding how one orb could move another
concentric to it. As Ragep explained, part of the difficulty arose because of a somewhat
different conception of the orbs in the Arabic hayʾa literature from what one may find in
Ptolemy’s Planetary Hypotheses or other less-specialized Arabic literature: “There the
heavens are stated to be a single, living being. Thus the daily motion is simply the
motion of the whole, and the other orbs are then seen as parts of this whole. But in the
hayʾa literature, the daily motion is caused by the ninth orb, which is a discrete orb as
deﬁned in 1.1 [15], namely a solid body contained between two spherical surfaces. As
such, there must be some way for it to move the orbs below it.”\(^{268}\) One may take the
motion to occur as given by the classic solution, such as that of Eudoxus, according to
which the poles of the contained orb are attached to two points on the concave surface

\(^{267}\) See below for Jurjānī’s quote.

\(^{268}\) Ragep, Tadhkira, 409.
of the enclosing orb.\textsuperscript{269} However, Jurjānī explicitly rejects this proposal on the grounds that it violates the tenet of simplicity of the celestial bodies insofar as it postulates two points of somewhat different essence. The problem became even more acute in the case of understanding how one orb could move another, where the two in addition to being concentric were also co-axial (i.e., shared the same axes). Any understanding that one provides here should also be able to explain how an enclosed, co-axial orb, in addition to being moved by the encompassing orb, can still possess its own proper motion.

The solution Jurjānī proposes is based on a key principle of his time: the motion of the contained results from the motion of its place, a principle which was classically illustrated by the example of the occupant of a ship who moves as a result of the ship’s motion. The principle was self-evident in those cases where the motion was displacing, that is to say, a motion which may be rectilinear or circular but is not positional (or rotational). In such cases, it was obvious that the contained will move due to the motion of its place, such as an occupant of a ship moves due to the ship’s displacing motion. The relevant issue was how to interpret the principle in the case of positional motion, one which characterized the orbs. Here also, the principle was fairly obvious in the case of eccentric orbs and epicycles (more generally, those orbs which had different centers); they were taken to be moved necessarily by the orbs which carried them. What crucially remained unclear was how the principle could be said to apply in those cases where the

\textsuperscript{269} Ibid.
orbs were concentric and/or shared the same axes. In such cases, how is it possible for an encompassing orb to move the contained orb?

Jurjānī’s proposal is rather striking. He explicitly rejects the theory of attachment (or contact) in favor of what one may call an action-at-a-distance theory. According to his theory, it is conceivable that the soul of the enclosing orb may have a sufficient moving faculty that it can move the contained orb as well. Here is his full statement:

“From antiquity, it has been well-known that in the celestial region an enclosing [orb] (al-hawī) will move [another] contained within it (al-mahwī) by necessity (biʾl-darūra) if their two centers are different and if the axis of the enclosing [orb] does not pass through the center of the contained [orb]. Otherwise, if the enclosing [orb] moves but the contained [orb], whether it be an epicycle or an eccentric, does not, consequences will follow that will violate the principles, specifically tearing and mending or expansion and contraction. [The moving of one orb by another] might also occur by attachment (biʾl-tashabbuh) when the poles are different [but the centers are the same]. The poles of the contained [orb] are attached to two points on the concave surface of the enclosing [orb] ... The poles do not depart from the two points; they revolve with them thus causing the contained [orb] to move with the revolution of its poles. This has been rejected since the postulated points on the concave surface of the enclosing [orb] are of the same essence (māhiyya) on account of its being simple; thus the attachment of the two poles of the contained [orb] to two designated points on the enclosing [orb] to the exclusion of any other points is to ‘give preference without there being a preponderant factor’ (tarjīḥ bilā murajjih).

It is clear from the statement in the text, as illustrated by the motion of the occupant of a ship, that the motion of the contained [orb] results from the motion of its place since that which is in place (al-mutamakkin) has the same status as a part of that place. So just as a part moves with the motion of the whole, that which is in a

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270 Ibid.
place will also move with the motion of the place. This always holds true for motion of displacement (al-ḥaraka al-ayniyya). As for motion in place (al-ḥaraka al-wad’iyya), it will necessarily hold for the first case that we have described and will possibly hold for the other cases, namely when the orbs are concentric (whether or not the axes are the same) and when the orbs have different centers but the axis of the enclosing [orb] passes through the center of the contained [orb]. [In these latter cases], the moving soul (al-nafs al-muharrika) of the enclosing [orb] may have a sufficient faculty (al-quwwa) to move the contained [orb], and hence will move it, inasmuch as every action is not contingent upon a corporeal instrument (āla jismāniyya), or it may not have [a sufficient faculty] whereupon it will not move [the enclosed orb].

The contained [orb] may then, in addition to its motion due to the enclosing [orb], have a proper motion since it is not impossible for a single body to have two motions – one accidental, the other essential. These two motions may or may not be in the same direction.”

Among other things, the statement displays certain qualitative considerations Jurjānī takes as relevant to his explanation. Any understanding of how one orb moves another cannot violate the physical principles that have to do with simplicity of celestial bodies or their possessing uniform circular motion. Accordingly, it precludes any explanation which posits points of different essence for the bodies, or which leads to consequences such as their tearing, contraction, etc. As part of denying the theory of attachment, he also cites a specific maxim. He says, to attach the poles to two particular points to the exclusion of other points on the surface is to “give preference without there being a preferent” (tarjīḥ bilā murajjiḥ), which is not allowed. Tarjīḥ was an

271 Sharḥ al-Tadhkira, 36b-37a.
important Islamic legal concept which amounted to a process whereby the qualified jurist would elevate (or prefer) a particular view above some other by weighing the evidence and arguments on both sides. Given that elevating a view required some explanation, the situation of tarjih bilā murajjiḥ was considered impossible, and, as such, formed a standard (and key) precept of legal reasoning. The inclusion and explicit mention of the precept to reject the attachment theory then indicates towards a certain parallel between Jurjānī’s astronomical thinking and the standard legal reasoning of the time.

In order to set out his solution, one notes that Jurjānī bases his explanation on what appears to be a certain rule that is, again, not grounded entirely on observationally-related considerations: the motion of the contained results from the motion of its place. Instead of rigorously proving the rule, he takes to simply illustrating it by the example of an occupant of a ship (contained) who moves due to the motion of the ship (place). He takes the rule as self-evident in the case of displacing motion, and shows it holds necessarily in the first case of positional motion (i.e., orbs with different centers) since holding otherwise leads to consequences that violate physical laws (such as tearing, etc.). More importantly, he holds that even in the other cases of positional motion, the principle, though not necessary, can be justified. And in attempting such a justification, he is willing to entertain other key qualitative considerations. The first is a

272 Hallaq, Sharīʿa, 77.
stock idea, “every action is not contingent upon a corporeal instrument,” which is intended to convey, in this setting, that orbs are moved by their individual souls (nafs), not due to corporeal objects or through the physical presence of intermediaries. More remarkable is the second idea: a soul possessing a sufficiently strong moving faculty can, in addition to its own orb, move other orbs below it. This implies that for a soul to impart motion, physical contact is not necessary, and, provided its moving faculty is strong enough, it can move orbs from a distance. In the context of the development of physical theory, such ideas will prove particularly fecund paving possibilities of other distance forces such as magnetism and gravity. In the immediate context, it reveals that, for someone like Jurjānī, the thought of souls as a kind of distance force can be reasonably entertained, and is not seen as an unacceptable physical violation.

5.5.8 Taqḍīr (Divine Ordainment) as an Explanatory Category in Astronomy

An interesting aspect of Jurjānī’s understanding of astronomical reasoning is the belief that certain astronomical facts exist simply because they have been divinely ordained (taqḍīr). A first example, he offers, is in his remarks at II.8 [11] concerning

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276 However, it remains unclear where the idea may have an ultimate grounding for him (speculative natural philosophy, theology, or metaphysics).
Mercury’s model. A particular feature of the model was that the center of Mercury’s epicycle (i.e., the epicycle on which Mercury was placed) is always in conjunction with the position of the mean sun. In technical terms, whenever the center of the epicycle is at the dirigent apogee, it will also be at the deferent apogee. Jurjānī does not offer any mathematical (or geometrical), observational or physical reason to explain why this conjunction always holds; instead, he states that it is due to the “pre-ordination of the Creator who is All-Knowing (bi-taqdīr al-ṣāniʿ al-khabīr).” A second example occurs at II.9 [12] where Jurjānī, clarifying the models of the upper planets, cites an observational fact that the upper planets at the mean apices of their epicycles are always aligned with the mean sun. The reason why this alignment always holds, he states, is because of the “pre-ordination (taqdīr) of the Creator who is Eternal.” A final example is seen at III.4 [5] where he details the process of how the orb rotates during the cycle of one day and night: the invisible half of the orb rises gradually point by point in all parts of the eastern half of the horizon, and the visible half will similarly set point by point, during the period of a day and night, until finally the position of the orb returns to its original condition. At the end, he turns to why this process always holds, citing the Qur’ānic verse that “this is the pre-ordination of the All-Mighty and the All-Knowledgeable.”

277 Tadhkira, II.8 [11].

278 Sharḥ al-Tadhkira, 65a.

279 Ibid., 72a. In other words, it means that the observer’s line to the mean sun is always parallel to the radius from the epicycle center to the planets.

280 Ibid.

281 Ibid., 121a. See the Qurʾān, 36:38; 41:12; 6:96.
First, there is a general point which the above examples indicate, that for Jurjānī the facts of astronomy must have an explanation or reason. In particular, those facts that appear odd – such as the conjunctions always holding (as in the first example), or mean apices being always aligned with the mean sun (referring to the second example), or the position of orbs returning always to its original condition (as evident in the third example) – must be supplied an explanation; they cannot simply be passed over as a brute, or unexplainable, fact.\(^{282}\) As such, it reflects a demand for a thoroughgoing intelligibility in nature.\(^{283}\) Moreover, it can be clearly observed in these examples that, for Jurjānī, intelligibility transcends human thinking. There are no observational, mathematical, physical or similar grounds to explain the necessity of such phenomena. This leads to the final point about the significance of the use of the specific word, \textit{taqdīr}, meaning (in this context) divine pre-ordination. For one thing, as Jurjānī clearly displays, it has a particular religious context, being grounded in the Qurʾān as well as in other religious sources. Furthermore, Jurjānī’s recurrent use of this word to explain a particular type of fact which involves binding one event to another is particularly telling. It draws on a classic Ashʿarite conception of causality that traces back to Ghazālī, who argued that there is no logical (or natural) necessity binding one event to another, but only divine preordination (\textit{taqdīr}) stipulating that they should occur together in


\(^{283}\) Cf. Ibid.
succession. \[^{284}\] Thus, Ghazālī had argued that there is nothing to prevent such a divinely ordained sequence from being broken whenever God so desires, as happens in the case of miracles. In using the concept of \textit{taqdir} to explain the facts of why conjunction, alignment, and the daily return of the orb take place \textit{always}, Jurjānī can be seen to convey a similar idea: there is no logical or such necessity in, say, why the center of Mercury’s epicycle is always in conjunction with the position of the mean sun; it occurs only because God has divinely preordained that succession, and, moreover, it can cease whenever God so desires. Accordingly, the notion of \textit{taqdir} as an explanation of certain facts does importantly confirm a certain degree of contingency in astronomy insofar as the apparent necessity of those facts is construed as a succession ordained by the divine.

\textbf{5.5.9 Significance of the Phrase “According to Them (i.e., Philosophers)” to Explain Some Principles of Astronomy}

Another aspect of Jurjānī’s thought that indicates a certain degree of contingency in astronomy involves the language he utilizes to explain some of astronomy’s principles which are related to philosophy. The \textit{Tadhkira} is based on a certain set of principles taken from \textit{falsafa}, some of which are mentioned explicitly by Ṭūsī, while others can be implied from his reasoning. \[^{285}\] For Ṭūsī, the principles function


as fundamental rules or imperatives which provide the necessary basis for establishing a cosmography. He invariably holds them as necessary, offering no indication which suggests that the principles can be anything less than certain. To be sure, Jurjānī’s commentary does not explicitly reject, nor even implicitly deny these principles; rather, it continues to use them following the pattern of the main text. However, Jurjānī does crucially clarify on certain occasions that the principle in question holds “according to the philosophers” or is “based on their view.”

The first example, regarding the perpetual motion of the orbs, occurs in the introduction of Book 1. Ṭūsī had defined the subject of astronomy as the simple bodies with respect to, among other things, their necessary motions. Jurjānī first clarifies what is meant by necessary motion, a motion that is perpetual (dā’im) and inseparable (mumtaniʿ al-infikāk). As an example of such motion, he then cites the motion of the orbs, writing, importantly, “for instance, the motion of orbs upon their consideration (ʿalā rāʾyihim).” The idea he is conveying here is thus clear: the perpetuity and inseparability of the orbs’ motion is a belief of the philosophers.

Another example is seen at I.2 in his remarks regarding Ṭūsī’s statement that nothing having the principle of circular motion can undergo any rectilinear motion at all, and conversely, except by compulsion. Jurjānī first explains what the statement

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286 Ibid.
287 Tadhkira, I. Intr. [2].
288 Sharḥ al-Tadhkira, 3a.
289 Tadhkira, I.2 [4].
means is that while nothing having the principle of circular motion can undergo any rectilinear motion, either by nature or by compulsion, a mobile which has a principle of rectilinear motion, while it cannot undergo circular motion by nature, can accept it by compulsion. The reason why it can accept circular motion by compulsion, he informs us, is because the compeller can sometimes produce a circular inclination required for circular motion in the elemental bodies. Importantly, he then adds that “according to them [i.e., philosophers] it is impossible (lā sabīl lahu ‘alā ra’yuhum) for a compeller to produce a rectilinear inclination in the celestial bodies.” Again, the impossibility of producing a rectilinear motion in the celestial bodies is presented as a belief of the philosophers.

A further example is Jurjānī’s remark at II.1 regarding the immobility of the earth. He first confirms Tūsī’s conclusion that the earth has a principle of rectilinear inclination due to which it cannot move in circular motion by nature. He then goes on to add that it cannot move by compulsion too since this motion “according to them” is perpetual (dā’ima). And there can be no perpetuity in forced motion for it would necessitate an obstruction (taʾṭīl) in existence (wujūd). The key portion of the reasoning

290 Sharḥ al-Tadhkira, 13b.
291 Ibid. The Damascus, Zāhiriyya MS 3117 skips one line before this statement; for comparison, see Husnu Pasa MS 1276, fol. 13b.
292 Tadhkira, II.1 [6].
293 Sharḥ al-Tadhkira, 20b.
294 Ibid.
is that if the Earth were to have a motion, even if it were forced, it would have to be perpetual according to the view of the philosophers.

In the same vein, one may mention an earlier remark regarding lunar markings where Jurjānī explicitly rejects the view that the lunar markings are due to variations in the composition of the moon. The reason he provides is that the lunar surface cannot be composed of parts of differing essence since “celestial bodies are simple according to them.” One may also mention his remark at II.2 regarding how each orb touches the one above it, where he writes: “the condition of this ordering mentioned implicitly in the chapter is that the convex surface of each lower orb touches the concave surface of the orb directly above it due to the impossibility of a vacuum. And this had not been [explicitly] presented for it is manifest after one accepts (taslīm) the impossibility [of the void].” The impossibility of the void is importantly presented here as a tenet that is granted, or accepted (taslīm), as opposed to one that is verified (taḥqīq) – from which, again, a similar idea can be inferred that the impossibility of the void is a principle according to the philosophers.

At face value, Jurjānī’s pronouncements can be read as belonging to the genre of writing known as taḥqīq, which means verification in its broadest sense, where a commentator would subject the text to a wide variety of activities ranging from philological examination to philosophical analysis. As Wisnovsky explains, the spectrum

295 *Sharḥ al-Tadhkira*, 61a (Paginated incorrectly as 46a).
296 Ibid., 25a.
of taḥqīq included providing alternate readings, identifying unnamed authors, glossing mysterious terms, supplying new proofs, correcting weak proofs, harmonizing incongruent theories, discarding unprovable theories and supplying proof for opposing theories. To this list one may add what Jurjānī is doing in this instance, which is to identify the principles as belonging to the philosophers.

At the same time, however, there are also some grounds for ascribing a more substantive import to this identification. For one thing, recall the kind of principles which are in question: perpetuity of the motion of orbs, impossibility to produce a rectilinear motion in celestial bodies, impossibility of void, simplicity of celestial bodies. It can be observed that these are judgments that pertain to physical considerations relevant to astronomy (as opposed to mathematical) and importantly posit a certain necessity about the real world, precluding that the world can even conceivably be otherwise. As such, this kind of necessity clearly contradicts the Ashʿarite tenet of divine omnipotence, according to which God can, say, produce a rectilinear motion in celestial bodies, if He so desires.

From this work, as well as his other philosophical-theological writings, there is no reason to doubt Jurjānī’s commitment to this central Ashʿarite teaching. Quite the contrary, there are passages in the Sharḥ al-Mawāqif where Jurjānī explicitly uses this core tenet to poke holes in the reasoning of the philosophers. A striking case is the

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question of whether it is possible or not for the sun to move gradually around its orbit while the shadows on earth remain stationary. Jurjānī writes:

“The completing of a revolution [of the sun] while preserving the shadow on its state is permissible according to us because all existents (mawjūdāt) are attributed to God Most High initially without any necessity (bi-lā wujūb) or necessitating (ījāb). The custom (ʿāda) is the decreeing (al-qādiya) of the non-existence of this condition, i.e., the preservation of the shadow on its state along with the completion of the revolution, despite it being possible according to us. The motion of the sun and the shadow is attributed to the Free Agent (al-fāʿil al-mukhtar). Thus it is permissible that the sun’s motion can exist towards completing a revolution, while the shadow’s motion does not exist accompanying it at all, except that the custom (ʿāda) of God Most High is to proceed opposite to it. And what you judge to be impossible (istiḥālatihi) is not impossible (muḥāl); rather it is the non-existence of the decree of custom (maʿdūm bi-qāḍā al-ʿāda).”

The passage provides, perhaps, the clearest expression in Jurjānī of the replacement of the notion of necessity imposed by the philosophers with the classic Ashʿarite conception of God’s custom or habit (ʿāda) as the grounds for the regularity in events. The concept of God’s ʿāda famously traces back to Ghazālī who utilized it as a bulwark against the necessitarianism embedded in the Avicennian notion of causality, by which he could cogently preserve the religious tenets of divine omnipotence and the possibility of miracles.

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Restoring this Ashʿarite context provides the ground for ascribing substantial import to Jurjānī’s remarks on relating the principles with the philosophers. Given the necessity that the principles imposed, he would have felt compelled to deny it by pointing out that they are principles specific only to the philosophers; they are not universal, demonstrative or first principles – the kind of principles which are necessary, evident, and accepted by all without any debate. The intention appears to be to highlight a certain contingency about these principles. It is worth noting that Jurjānī, however, does not explicitly reject or even implicitly deny them, nor does he attempt to provide an alternative, opposing view. In other words, he remains faithful to the main text, interested in providing a commentary (sharḥ), not a calumny (jarḥ). Yet, he does target the implicit assumption that the principles are necessary or cannot be otherwise. If this interpretation of Jurjānī is correct, it greatly enhances our understanding of how Jurjānī is able to negotiate two different traditions: on one hand, he remains largely faithful to the commentary tradition of Tadhkira by granting the principles, which he would have seen as required (and rightly so) in order to proceed with the task of cosmography; on the other hand, he reflects his Ashʿarite view of science by pointing to the contingency of the principles, thereby preserving the possibility that on these issues (pertaining to the physical considerations of astronomy) the reality can be otherwise, if God so desires. The principles, then, should be viewed in a deflationary sense, not as necessary or intrinsic facts of reality, but rather as regulative principles, principles

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300 See Wisnovsky, “Avicennism and Exegetical Practice.”
whose cessation at some time is not impossible, but whose acceptance is a condition for the possibility of successful astronomical research. A more general result of this move seems to be a reinforcement of the idea that the criteria of astronomical knowledge need not be demonstrative certainty attained through deduction from first principles, but rather, conclusions based on certain qualitative considerations can be granted insofar as they aid in the task of regularizing the motions and positions of the celestial bodies.

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5.6 Conclusion

From Jurjānī’s response against the skeptics, we learned that he combined a vision of astronomical knowledge as contingent in its physical considerations with another vision: one of it being true and real in its geometrical (and mathematical) considerations. In the Sharḥ al-Tadhkira, Jurjānī extends this view of astronomy as combining both the visions with much more precision and clarity. Assigning its object of study as the world of ḥiss, as opposed to ḥaqīqa, and its method of reasoning as innī and persuasive proofs, as opposed to limmī, not only helps to avoid disciplinary conflation vis-a-vis natural philosophy, but also allows astronomers to stipulate and pursue their own standards of knowledge in astronomy. For a pure Aristotelian (or an Avicennian), an ideal system of astronomical conclusions would be one which saved the phenomena

impeccably and which does so by describing a kind of cosmos warranted by the principles of physics and metaphysics.\textsuperscript{302} For Jurjānī, to be sure, there are some topics in astronomy, for instance, the sphericity of the skies, or the order of positioning of outer planets, where knowledge is attained through an apprehension of evident facts (observational evidence and mathematical/geometrical reasoning) and their consequences. On such occasions, he would claim that the knowledge is certain or beyond doubt, and portrays the reality as it is. Nevertheless in the more typical cases, the goal he sets out is not apodictic certainty, but knowledge of a more approximate kind, comprising of probable, plausible, and well-known opinions, and one characterized by two main features: empirical adequacy and physical consistency. Such knowledge provides the basis for establishing the cosmography. Faced with the problem of equivalence (i.e., of choosing between two rival hypotheses which are mathematically equal, but physically incongruent), he employs a number of strategies. Among them, he (1) resorts to certain qualitative considerations in the form of principles of simplicity, economy, and elegance that may have a grounding in metaphysics or speculative theology; (2) draws parallels between astronomical thinking and Islamic legal reasoning in the form of concepts like \textit{tarjīh} (elevating a ruling), \textit{istiḥsān} (juristic preference), and \textit{munāsaba} (suitability) and; (3) extends a principle of terrestrial motion to also cover the celestial motion (“motion of the contained results from the motion of the place”) and entertains the possibility of the soul as being a distance-force. Moreover, the utilization


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of taqdīr (divine foreknowledge) to explain the curious binding of two events, and the questioning of the intrinsic necessity of the falsafī principles, provide striking cases of how his Ashʿarite stance of divine omnipotence made itself felt within theoretical astronomy – highlighting the regulative, as opposed to the necessary, function of the principles, and introducing, in varying degrees, a certain contingency about some of its more physical conclusions. The question of determining the distances and sizes of the planets reaffirms his introduction that, ultimately, astronomy is beneficial for it provides a way of cultivating awe in the majesty of God, and, to that end, adopting the more traditional or conservative position may suffice in cases where reality cannot be known. Yet, this does not lead him towards an extreme skeptical view, one of astronomy being fictional or instrumental, at least as understood in its modern philosophical sense. For one thing, he claims that at least some parts of astronomy can describe the world accurately. More importantly, to be sure, his stance is premised on a certain meagerness of astronomy for it cannot attain a certain kind of knowledge (i.e., demonstrative certainty), but this is a stance perfectly consistent with realism.

303 Cf. Ragep, “Freeing Astronomy from Philosophy.”

CONCLUSION

As James Turner observed, “a single, simple word – ‘science’ – controls several of the central narratives in American intellectual history.”¹ Not surprisingly, the word does the same in Islamic intellectual history. Yet, the foundation on which science stands is generally poorly understood in the pre-modern Islamic context, and, as a result, endangers our understanding of much of Islamic intellectual history. To correctly understand the scientific activity in pre-modern Islamic societies, we need a clearer view of the assumptions, methods, and interpretations of science. In other words, we need to investigate the epistemological foundations of science in pre-modern Islamic sciences. This study has served as a contribution to that end by focusing on Jurjānī. And it attempts to explain what the significance of these foundations is for our understanding of Islamic intellectual thought, its history, and the way that history is written.

We saw in Chapter 2 that Jurjānī evinced a confident stance on the attainability of knowledge. Operating within the kalām epistemological context, while drawing on the post-Avicennian debates on the issue, he upheld the position that true and certain

knowledge can be attained through sensory faculties. Likewise, he considered the judgments of the estimation (al-wahmiyyāt), made with respect to sensibles, to be true and includes them among the certain premises on which demonstrations are based. He further identified such judgments with the conclusions of geometrical thinking, with the implication that such thinking can deliver true and certain knowledge. Moreover, he also extended the scope of knowledge to include probability, thereby according a certain respect to those fields where the ultimate standard of apodictic certainty cannot be attained.

As we saw in Chapter 3, Jurjānī is unusual amongst his contemporaries in the depth of his engagement in epistemological issues concerning truth and reality. He explicitly rejected the Avicennian interpretation of truth-reality based on the Active Intellect. The ingenuity of his epistemological project lies precisely in his metaphysically deflationary, “human-centered epistemology”\(^2\) which relied on his novel understanding of the crucial concept of nafs al-amr and that discarded altogether the Active Intellect. Indeed, he was unprecedented in the extent of his analysis of the concept of nafs al-amr – an analysis, which importantly provided the epistemological, ontological, and theological dimension of the concept.

Chapter 4 showed that it was precisely Jurjānī’s distinctive epistemological framework which led him directly towards a solution to the contentious philosophical

\(^2\) Expression taken from Robert Wisnovsky, “Avicenna’s Islamic Reception,” 197.
problem of the time: the status of mathematical entities and their relation to reality. In response to the skeptical views of the Avicennian and of Ījī, Jurjānī deployed his conceptual resources to argue for a more confident conception of the mathematical sciences, affirming the truth, reality, and certainty of its conclusions. Moreover, as we saw, Jurjānī’s confident view of the mathematical domain in sciences is linked with another striking view, Ashʿarite in legacy, which he shares with Ījī, that is, the contingency of the largely qualitative or physical domains of astronomy.

The latter theme was observed again in Chapter 5, where we learned Jurjānī’s view on the status of astronomy and on the means whereby theoretical disputes in astronomy may be resolved. As we saw, his position cannot simply be understood in terms of our modern categories of “realism” and “instrumentalism,” for his was a much more complex view, one that combined at once the conventional tenets of theoretical astronomy, elements of his distinctive confident epistemology, Ashʿarite commitment towards contingency of nature and omnipotence of God, and methods of reasoning drawing parallels with Islamic legal theorizing.

This study has, on one hand, made interventions in the philosophy of science (specifically, the mathematical sciences) in the pre-modern Islamic context. On the other hand, it has clarified some aspects of the post-classical history of kalām, falsafa, and science, and of the extent and limits of their mutual interactions. Situated more broadly in the context of contemporary science-religion dialogue, it cuts through a number of false presuppositions that have impeded the historical understanding of scientific activity in pre-modern societies. As Peter Barker notes with a specific
reference to sixteenth-century science, “the first of these [false presuppositions] is that science and religion are natural enemies. Second has been a tendency to expect sixteenth-century scientists to be the kind of people, and to have the kind of intellectual concerns, that emerged after the Scientific Revolution and became especially clear in the twentieth-century.” Indeed, a careful reading of Jurjānī’s epistemological project has been particularly rewarding. For investigating the conceptual presuppositions of science has revealed “a shift of almost tectonic proportions in conceptions of knowledge” (and science) within the pre-modern Islamic societies. According to Jurjānī, the two core notions of “truth” and “reality,” forming the fundamentals of a scientific worldview, are to be explained through the central, ontological-epistemological concept of *nafs al-amr* – which itself is explicitly and importantly explained through a reference to God’s knowledge. Whatever modern science and knowledge is, it is surely not conceived with reference to God. Furthermore, the “scientific” is assimilated within the “religious” in terms of also the objectives of scientific activity. As we saw, Jurjānī (like others before him) regularly mentions the benefit of astronomy in terms of cultivating awe in God’s creation, which is supported by frequently citing verses from the Qurʾān.

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4 Expression taken from James Turner, “Le concept de science,” 753.

5 Nahyan Fancy, *Science and Religion*, 112 (“The recognition that ... [ibn al-Nafis’s] anatomical result is ultimately grounded in a new understanding of the soul should force historians to seriously reconsider the validity of the assumption that pre-modern Islamic medicine was basically modern medicine in an earlier stage of development. For whatever modern science may be, it is certainly not founded upon an investigation of the soul”).
This is not a warfare model of science and religion. Instead, the scientific here is inextricably fused not just with, but into, the religious. Thus, one can repeat for Jurjānī what Morrison concluded about Nīsābūrī. Science was part of Jurjānī’s religious scholarship, though not always motivated by narrowly religious (or utilitarian) concerns; and religious (or theological) considerations helped to shape his understanding of science and of its epistemological underpinnings.

This study has focused on situating Jurjānī’s science within its epistemological context as expressed in his rational-theological (kalām) and astronomical writings. A broader contextual study – to be explored more fully in future research – would have to situate Jurjānī’s kalām epistemology in the context of his views about knowing, truth, and certainty as expressed in his Sufi works. The purpose of the following Postscript is to make a few preliminary and brief remarks about how Jurjānī views the interface between Sufism and rational-theological thought (kalām).

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6 Morrison, Islam and Science, Conclusion.
POSTSCRIPT:

INTERFACE BETWEEN SUFISM AND RATIONAL-THEOLOGICAL THOUGHT

This section offers a few preliminary remarks on mapping the interface between Sufism and rational-theological thought in Jurjānī. Given the focus of this dissertation, attention is directed specifically to the epistemological aspect of the interface, especially the theme of knowing God (or, rather, knowing the conception of God) – which Jurjānī took to be highest attainment of human endeavor. It first looks at two of Jurjānī’s statements, regarding the idea of knowing God in his kalām works, in order to explore his views on the extent to which kalām could support the attainment of that goal. It then examines one of his Sufi writings, on the attainability of knowledge (maʿrifa) of God, in order to explore the ways in which his Sufi views intersect with his philosophical-theological-scientific views, and the manner in which he can combine different

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2 Jurjānī, Sharḥ al-Mulakhkhas, 1b (“Indeed, rational demonstrations and transmitted testimony prove that the highest level for a man desiring to reach the pinnacle of perfection and the loftiest rank of felicity is to know (maʿrifa) the Creator, Exalted is He, in terms of the exaltedness of His Being and the purity of His attributes”). See also below section on “Different Approaches,” for another similar passage.
approaches to attaining mystical-metaphysical knowledge into a coherent epistemological scheme.

**The Legal Status of Using Rational Inquiry as a Means to Attain Knowledge of the Conception of God**

Jurjānī presents his views on the attainability of God’s knowledge in at least two of his important *kalām* works, each highlighting a distinct aspect. The first, for our purposes, is a preliminary point contained in his commentary on the *Mawāqif* of Ījī, where the latter devotes an entire chapter on the issue of whether engaging in theoretical reasoning (*naẓar*) to know God is obligatory or not. The main issue is broadly construed in legal terms: What is the status of using theoretical reflection in attaining knowledge of God? Following Ījī’s view, Jurjānī holds that using theoretical reflection (*naẓar*) in order to attain the knowledge of God is considered obligatory (*wājib*) by the consensus (*ijmāʿ*) of the Muslim community (*umma*). The obligation, he specifies, stands in accordance with the two main theological schools of Islamic history, Ash’arites (which he refers to as “us”) and the Mu’tazilites. However, while both schools agree on the necessity of using reasoning to attain knowledge of God, they disagree, he informs, on the method by which this necessity is established. Here Jurjānī, following Ījī, engages in a lengthy discussion regarding whether the necessity is

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3 *Sharḥ al-Mawāqif*, vol. 1, 257-82.
4 Ibid., 257.
5 Ibid.
demanded by transmission (simā’, i.e., the hearing of a true report based on authority), as the Ash‘arī mutakallimūn contend, or by the dictates of reason (‘aql), as the Mu’tazilites argue.⁶ Jurjānī, like Ījī, is supportive of the former view. Moreover, he proceeds to distinguish between two kinds of transmission-based proofs, one based on the authority of verses from Qur’ān and ḥadīth, and the other based on the authority of the Muslim scholarly consensus (ijmā’),⁷ preferring the latter as the stronger of the two proofs to establish the necessity in question.⁸

The discussion clarifies an important point. For Jurjānī, using rational-theological reflection as an approach to attain knowledge of God (ma’rifā), or rather the conception of God, is not simply a permissible or desirable activity, but more importantly, one that is obligatory (wājib), where the obligation itself is grounded not in reason, but rather derives from transmission in the form of ijmā’ (i.e., consensus of learned scholars). An important result of this move – if not its intention – is that it provides a coherent justification for the pursuit of such theoretical sciences like kalām and even astronomy, insofar as they provide the requisite intellectual concepts and methods of reasoning in order to attain the conception of God. While there was no dispute among Ījī and Jurjānī on the viability of kalām to attain such knowledge, Jurjānī, as seen earlier, excuses from Ījī by upholding that even astronomy possesses the requisite epistemological

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⁶ Ibid.
⁸ Ibid., 258.
foundations to assist towards that end. Accordingly, as we have seen, Jurjānī frequently and explicitly does use this justification as one of the primary components of his defense against skeptical assessments of astronomy.

Different Approaches to Attaining Metaphysical-Mystical Knowledge

The second, more substantial point is Jurjānī’s statement of an important classificatory scheme of the different approaches or methods of attaining knowledge of God that he sets out in his gloss (ḥāshiya) on Taḥtānī’s 

Maṭāliʿ al-Anwār. The immediate context for Jurjānī’s response pertains to the way falāsifa understand the four levels of perception of the human rational soul. Briefly put, the first level is of the material intellect (al-ʿaql al-hayūlānī), which is the soul’s pure capacity to receive knowledge; the second is of the intellect in habitu (al-ʿaql biʾl-malaka) which is the faculty of the soul when it has obtained the necessary truths (darūriyyāt) and possesses the capacity to acquire theoretical truths (nazariyyāt); the third level, called the actual intellect (al-ʿaql biʾl-fiʿl) is when the intellect acquires the theoretical truths and

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9 See Jurjānī, Sharḥ Mulakhkhaṣ, 1b. (Knowledge of God “is attained by reflecting (tafakkur) on the creation and its secrets, and pondering (tadabbur) over the things and their ways. Astronomy studies the celestial orbs and their shapes, and reveals the elements and their states. It is an excellent aid in this task for the person who pursues it by way of reflecting on the creation of the skies and the earth, prompting him to say, ‘O our Lord, You have not created this in vain.’ ”)


12 English translation of al-ʿaql al-hayūlānī and the remaining three intellects are taken from R. Morrison, Islam and Science, 144 (who in turn borrows it from Gutas, Avicenna, 164). For the corresponding Arabic section from Ibn Sinā, see Isharāt, vol. 2, 390. I describe the four level of intellects using Jurjānī’s own definitions presented in his “Book of Definitions.” See Jurjānī, Taʿrifāt, 128.
possesses the capacity to access them when it wants; then the fourth and highest level, known as the acquired intellect (al-ʼaql al-mustafād) is that state in which the intelligibles are present as if the intellect sees them and such that they never disappear from it.

At this point, Jurjānī interjects with an extended remark, wherein he sets forth his own view that the highest rank of the rational soul is to attain knowledge of God:

“Know that the greatest felicity (al-šaʿādat al-ʿuzmā) and the highest rank (al-martaba al-ʿulyā) for the rational soul (al-nafs al-nāṭiqa) is to attain profound knowledge (maʿrifa) of the Creator, most High, including His perfect Attributes and His purity from any defects, and including His effects and actions at the time of first and later creation. In short, one should know the beginning of one’s existence (mabda’) and the return (maʿād, or resurrection).”  

Once again, the remark highlights that, according to Jurjānī, the greatest happiness and the highest elevation for the soul is to attain a deep knowledge of God. Here, it is also of significance that the goal of perfection through attaining conviction in the beginning and end of one’s existence (mabda’ wa maʿād) will be an important theme for Jurjānī in his Sufi writings. Moreover, Jurjānī indicates that knowledge of God and His Attributes, or rather its conception, is attainable by means of theoretical reflection. But, as we shall see when we turn to his Sufi writings, the kind of knowledge attained through theoretical reflection will only possess a particular kind of certainty,

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13 Jurjānī, Hāshiya ʻalā Sharḥ al-Maṭāliʻ, 16-7.
and that there are higher states of certainty and knowledge, for him, that theoretical reflection will not, in principle, be able to attain.

After underscoring that the highest elevation of rational soul is through attaining knowledge of God, Jurjānī then proceeds to provide a detailed schemata of two distinct paths leading to the knowledge of God, identifies the categories of individuals who adhere to each path, describes the final end of each path, and, finally, provides his own judgment regarding which of the two paths is better and why.¹⁴

Among the two paths to attain knowledge of God, the first is the path of theoretical reflection (nazariyyāt) and reasoned proofs (istidlāl).¹⁵ It is practiced by certain groups from within the “religious communities of the prophets” (min milāl al-anbiyāʾ), which he goes on to specifically identify as (1) the theologians (mutakallimūn) and (2) the more discerning of the peripatetic philosophers (al-afham al-ḥukamāʾ al-mashšāʾun), which, for Jurjānī, meant Avicennian.¹⁶ Drawing on the terminology of falsafa, Jurjānī explains that the culmination of this path results in the perfection of the discerning faculty (al-quwwa al-nazariyya), and a elevation in its rank, until it is elevated to the highest of all the ranks, known as the “acquired intellect” (ʿaql mustafād or intellectus acquisitis), wherein the intelligibles become present to the actual intellect as if the intellect sees them.¹⁷

¹⁴ Ibid., 17.
¹⁵ Ibid.
¹⁶ Ibid. See also Fazlıoğlu, “Between Reality and Mentality,” 19.
¹⁷ Ḥāshiya ʿalā Sharḥ al-Maṭāliʿ, 17.
The second path to knowledge of God is one of spiritual self-discipline (riyāḍa) and purification of the soul, practiced in accordance with the dictates of Islamic law (Shari‘a).18 As in the first case, there are also two groups of individuals who can be identified with this path, (1) the Shari‘a-abiding Sufis (al-ṣūfiyya al-mutasharri‘ūn) and (2) the more discerning of the illuminationists (or Ishrāqī philosophers (al-afham al-hukamā’ al-ishrāqiyyūn)). By following this path, the ultimate goal that is reached is the perfection of the practical faculty (al-quwwa al-ʿamaliyya), and its ascent, until it is elevated to attain its highest level, wherein forms of knowledge flow directly upon the individual’s soul by way of becoming present to the soul, in a way that parallels that of the acquired intellect (ʿaql mustafād).19

Having laid out the two positions and its adherents, Jurjānī then proceeds to judge between the two, concluding that the second path (i.e., based on purification of the soul) is more perfect and robust than the first on two accounts. First, the knowledge gained through the ʿaql mustafād, on account that it is acquired by way of disputation, can never rid itself of conjectural doubts.20 Contrary to this, in the case where the noble forms of knowledge descend on the soul, because the perceptual faculty dominates the intellective faculty, judgments of the soul carry no possibility of disagreement or doubt.

Second, the abundant flow of the many noble forms upon the perfected soul serves to

18 Ibid.
19 Ibid.
20 Ibid.
purify the soul from all its debase qualities and eradicates its ignoble relations. Jurjānī likens this path with a mirror which is fully polished, due to which it possesses a multitude of forms that are enlarged and expanded for the viewer. On the other hand, the judgment gained through the 'aql mustafād arises from relations among principles which have to be ordered together in order to reach the unknown. The analogy, Jurjānī continues, is with that mirror wherein only a portion of its surface is clean, and thus it provides only a fraction of the full view.21

To summarize, according to Jurjānī, the perfection of the human soul lies in knowing God, which is attained either through rational, intellective efforts, identifiable generally with the mutakallimūn and Avicennian philosophers, or practical efforts, identifiable generally with the Sufis and the Ishraqis. While Jurjānī thinks that the intellectual (naẓarī) enterprise to know God is certainly valuable, he has no illusions that its outcome cannot always be doubt-free and that it cannot completely succeed in purifying the soul of its debase, hindering qualities in its attempt to know and resemble the divinely noble attributes. Accordingly, “despite being a devoted proponent of the discursive method of kalām, he considers mystical knowledge gained through unveiling (mukāshafa) and vision (mushāhada) to be superior,” providing a higher level of certainty and direct knowledge, independent of evidence.22

21 Ibid.

22 A. Shihadeh, “Introduction,” in Sufism and Theology, 4. Though Shihadeh makes this comment about Qushayrī, it equally applies to Jurjānī as the foregoing shows. In this regard, one may also draw comparisons with Ghazālī, who was also a proponent of the discursive method of kalām, but considered mystical knowledge gained through unveiling to be superior. See A. Shihadeh, “Introduction,” 1-14. Ghazālī’s well-known assessment in al-Munqidh mina l-dalāl would have only consolidated the impression
Practical Aspects of Jurjānī’s Sufism

Biographical sources tell us that when Timur conquered Shirāz in 1387, although Jurjānī’s house had been declared out of bounds when Timur’s troops started looting, Jurjānī had to leave Shirāz and follow the conqueror to his capital in Samarqand. It is during his stay in Samarqand, which continued for a little less than two decades (he returned to Shirāz in 1405), that he was introduced to Khwāja ʿAlā al-Dīn Aṭṭār, a revered Central Asian Sufi Shaykh of the Naqshbandiyya ṭarīqa (spiritual tradition), under whose guidance and direction Jurjānī began his spiritual journey (sulūk) in the Naqshbandi ṭarīqa. At some later time, Khwāja ʿAlā al-Dīn Aṭṭār also instructed Jurjānī to stay in close contact with one of his advanced students, Mawlānā Nizām al-Dīn Khāmush, and in compliance with this instruction, it is said that Jurjānī never missed the gatherings of the latter.

Jurjānī has described his spiritual development at times briefly and at times in detail. The following is a short account of one of his spiritual experiences mentioned in Rashaḥāt ‘Ayn al-Ḥayāt (Beads of Dew from the Sources of Life), a well-known work containing a collection of biographies of various shaykhs of the Naqshbandiyya:

“According to Mawlānā Nizām al-Dīn Khāmush:

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of kalām’s secondary position. There, he had provided the four main current approaches to metaphysical knowledge – kalām, philosophy, Ismāʿīlī instruction and Sufism – and concluded that genuine certainty is attainable through Sufism, whereas kalām may only serve a subsidiary role. See also Shihadeh, “The Mystic and the Sceptic in Fakhr al-Dīn al-Rāzī,” in Sufism and Theology, 101.

23 See the section on the chronology of Jurjānī’s life which provides references for the details mentioned in this paragraph.
‘After Sayyid Sharīf Jurjānī had joined companionship with the venerable Khwāja ‘Alā al-Dīn Aṭṭār, and the venerable Khwāja had accepted him, Sayyid Sharīf asked him to be introduced to one of the companions, so that, by conversing with him, he could learn how to prepare for and take benefit from the venerable Khwāja’s meetings. The venerable Khwāja responded by assigning Sayyid Sharīf to me. After finishing his academic lessons (dars), the venerable Sayyid would come and sit quietly and stationary in front of me. While he was sitting one day in his state of silent, inner contemplation of God (murāqaba), he experienced such a state of transcendence (‘adm shū’ūr wa’l-idṭirāb, lit. lost awareness and was dazed due to annihilation in the remembrance of God) that his head sank to his breast and his turban (ʿamāma) fell to the floor. I got up from my place and set his turban on his head. When he recovered consciousness, I asked him: ‘What is the cause of this sudden state and experience?’ He replied: ‘It has been my lifelong wish that, if only for a slight moment, the patterns of knowledge (al-nuqūsh al-ʿilmiyya) should be erased from the slate of my cognitions (lawḥ madrak), and, if only for a fraction of a moment, the theoretical reflections (fikr al-maʿlūmāt) should be wiped away from my heart (qalb). Now, through the grace of your blessed company, that wish has been fulfilled. I was unexpectedly overtaken by this state of loss of awareness due to tasting (dhawq) and enjoying (ladhdhat) the feeling of this [spiritual] experience. Pardon me for the lack of good manners I have displayed!’

The above passage is of distinct significance, introducing one to an important dimension of Jurjānī’s thought in the form of possessing a deep desire for a religious (or spiritual) experience more personal than what theoretical or theological reflection could offer. It also serves as evidence that Jurjānī was not simply interested in Sufism in some exotic way, but actively and formally took to traversing the spiritual path (sulūk) and

attaining this personal religious experience by means of practicing silent, inner remembrance of God (murâqaba) under the direction of a famous Sufi guide (Shaykh) in the Naqshbandiyya silsila.  

Sufism and Sharīa

Another important aspect of Jurjānī’s understanding of Sufism is its relationship with the Sharīa (Islamic law), which deserves a word or two, if only because the issue not only informed the then prevalent discourse, but has also become particularly significant in modern times. For one thing, the relation of Sufism and jurisprudence was important in order to address the issue of the position of taṣawwuf in the Islamic intellectual tradition, whether as an “essentially Islamic phenomenon,” being an authentic expression of Islamic spirit or as an “exotic growth,” drawing its various elements from various other sources.

25 For another passage revealing his diligence in attending the gatherings of Khwāja ‘Alā al-Dīn Aṭṭār, see Rashāḥāt ‘Ain al-Ḥayāt, vol. 1, 187-8. See also the quote cited earlier from the same work (“until I attained the companionship of the venerable Khwāja Aṭṭār, I did not truly know God.”), and the two letters (maktūb) addressed to Khwāja Aṭṭār.

26 For a summary of the various viewpoints on this issue, see M. A. H. Ansari, Sufism and Sharī‘ah (London: Islamic Foundation, 1986): 61-3 (One modern view considers “Sufism as an exotic growth and traces its various elements to one external source or the other. For instance, they trace its ascetic and monastic practices to Christianity; its exercise in self-annihilation (fanā) to Buddhism; its aspiration to know transcendent realities through purification of the soul and illumination to Gnosticism; its vision of the multiplicity proceeding from an ultimate unity to neo-Platonism; and its monistic theosophy to Indian Vedanta.” Another opposing view considers Sufism as an essentially Islamic phenomenon, and authentic expression of the spiritual dimension of Islam given in the form of iḥsān (excellence), as mentioned in the canonized hadith of Gibrāil. “They point out that the abstinence and poverty which the Sufi practice are inspired by the life of the Prophet [May God bless him and grant him peace] and his Companions; that their withdrawal from society is approved by the Sharīa as a measure to save themselves from the contagion of corruption and degeneration in government and society; that their occupation with devotion, dhikr and contemplation has been applauded by the Prophet; and their theosophical vision ... are suggested by different Qur’ānic verses and aḥādīth.”).
elements to one or other external sources. Furthermore, a particular question that has divided the Sufis throughout their history has been an understanding of Sharīʿa in relation to the outward and inward dimension of obedience to God. Interpreting Sharīʿa essentially as a code of law that seeks to regulate external behavior, it has sometimes led to characterizations of the Sharīʿa as the shell, or the form, while the kernel, or reality, lies outside the Sharīʿa, and can only be known and attained through the Sufi path. Conversely, for those whom Sharīʿa has a more encompassing meaning, they understand Sharīʿa to include the realities of such states as love, fear, awe, hope, patience, gratitude, dhikr, etc., and consider taṣawwuf only as the practical way to attain to such realities.

Jurjānī’s views on the relation between taṣawwuf and Sharīʿa combines an understanding of taṣawwuf as an authentically Islamic, much needed spiritual dimension of one’s life with its interpretation of being a means by which to attain whatever external and internal rulings the Sharīʿa has already laid down – the latter understood by him as constituting the overarching measure of all the realities of religious life. This can be most clearly observed in his Kitāb al-Taʿrīfāt, where he defines

27 Ibid., 61.
28 Ansari, Sufism and Sharīʿah, 74-6.
29 Ibid., 76, quoting Shaykh Sirhindī who refers to this group by saying, “Others are concerned with reality (ḥaqīqah). But their reality is not the reality of the Sharīʿah; for them the Sharīʿah is merely the form, nothing but a shell. The kernel in their view lies beyond the shell.”
30 Ibid., 75.
taṣawwuf, highlighting its import in rendering perfection in one’s observance of the Sharʿīa:

“Taṣawwuf: To uphold (wuqūf) the etiquettes (ādāb) of Sharʿīa, externally (ẓāhir), in a manner that one observes its external rulings in the inner self (al-bāṭin), and internally (bāṭin), in a manner that one observes its internal rulings in the external [behavior], such that perfection (kamāl) in [the observance of] both rulings is attained by the one who is disciplined (mutaʿaddib).”31

Thus, for Jurjānī, Sharʿīa functions as a comprehensive code of law that is at once concerned with the external behaviors and the internal states of the person. The same idea is conveyed in his definition of Sharʿīa as “a deliberation in order to meet one’s obligation of servanthood (hiya al-iʿtimār b-iltizām al-ʿubūdiyya),”32 where obligation is meant to include one’s conduct, both outward and inward. Jurjānī is explicitly putting forth a relation where there are no realities (ḥaqīqa) of religious life outside the Sharʿīa, and the Sufi path (sulūk) is only a means to attain the realities of spiritual life as defined by the Sharʿīa.

Jurjānī’s emphasis on adhering to the Sharʿīa while traversing the spiritual path is also reflected in another particularly important short Sufi treatise written in Persian, entitled Risāla Shawqiyya (The Treatise on Longing), where he warns that any spiritual practice that contradicts the Sharʿīa is misguidance: “the spiritual exercises of a seeker (sālik) should be in accordance with the Sharʿīa, otherwise it will be misguidance (dalāla,

31 Taʿrīfāt, 54 (entry on “taṣawwuf”).
32 Taʿrīfāt, 109 (entry on “sharʿīa”).
This strict adherence to Sharīa is not surprising when one considers, among other things, the orientation of the Naqshbandiya silsila to which he belongs. For one thing, the Naqshbandīs were especially noted for their comparatively stricter adherence to the Sharīa in their sulūk than the other Sufī ṭuruq. Moreover, it is worth highlighting that Jurjānī’s position of the primacy of the Sharīa as the overarching framework embedding taṣawwuf echoes similar earlier ideas belonging to the eponymous founder of the silsila, Khwājā Bahā al-Dīn Naqshband, who, Jurjānī may have possibly even met. In one of his letters, the well-known seventeenth-century Indian religious reviver (mujaddid), Shaykh Aḥmad Sirhindī, who belonged from the same silsila, reports that “Shaykh Bahā al-Dīn Naqshband was asked: ‘What is the purpose of sulūk?’ He replied that the purpose is to know in detail what you know in brief, and to perceive in vision what you know through arguments. Commenting on these words, Shaykh Sirhindī says: ‘The Shaykh did not say that the purpose is to acquire the truths beyond the Sharīa. It is, however, a fact that the mystic receives different ideas during his sulūk. But when he reaches the end, these superfluous ideas disappear in the air. He then perceives the same truths of the Sharīa in detail, and comes out of the narrow enclosure of reason to the open space of kashf (unveiling).’

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33 Risāla Shawqiyya, Istanbul Carullah MS 1006, fol. 6a.
35 See the section on the chronology of Jurjānī’s life.
36 Quoted in Ansari, Sufism and Sharī’ah, 58.
Cognitive Dimension of Sufism: The Three Levels of Fanāʾ, Tawḥīd, and Yaqīn

By the 6th/12th century, taṣawwuf in addition to its ascetical/renunciation dimension also began to possess a kind of cognitive orientation which derived from its self-understanding as a systematic and well-structured path to knowing God (maʿrifā).37 As a path which sought to transcend the ordinary human condition through spiritual self-discipline and purifying the self of bodily disposition and attachments, it contrasted with the human enquiry in kalām which attempted to know God, or to defend certain conceptions of God, through an exposition deriving its reasoning from evidence.

In his Risāla Shawqiyya, Jurjānī explores this noetic orientation of Sufism using three technical Sufi concepts, which are particularly relevant for us in order to understand the relation and interaction between the Sufi and the rational-theological ways of knowing. The first concept is of fanāʾ, which literally means to die and disappear.38 However, in the Sufi context, fanāʾ refers to a particular affective experience (or feeling) that arises in the course of contemplation on God, when the seeker effaces himself completely and becomes only occupied with God.39 Jurjānī explains that there are three progressively higher levels of fanāʾ that are commensurate


38 See F. Rahman, art. “Baḳāʾ wa-Fanāʾ,” EI².

39 Ibid. A forceful and lucid statement was developed, as a criticism of Ibn al-ʿArabī, by the 17th c. Indian reviver Shaykh Ṭabīʿ Sirhindī. See Ansari, Sufism andSharīʿah, which contains translation of the latter’s Persian Maktūbāt.
with a seeker’s advancement in his meditation.⁴⁰ The first and the beginning level is called “fanāʾ fiʾl-aʿmāl” (lit., effacement in actions), which refers to a state where the self turns away from considering or noticing one’s actions, while continuing to perform them. The object of this fanā’, he says, is to free oneself from feelings such as vanity and conceit that arise when one begins to notice his praiseworthy actions as belonging to oneself.⁴¹ The second level, known as “fanāʾ fiʾl-ṣifāt” (effacement in attributes) identifies a higher state where one also effaces any conscious awareness of one’s praiseworthy attributes or qualities such as sincerity (ikhlāṣ), reliance (tawakkul), submission (taslīm). Even if a person has attained to some such state (maqām) such as sincerity, Jurjānī says, one should believe that one has not reached it yet, for otherwise one will fall into conceit and arrogance, and will not be able to progress further, and in fact will create defect in his present state.⁴² The highest and final level is of “fanāʾ fiʿl-dhāt” (effacement in being) when the self itself is effaced. Concerning all three types of fanā’, Jurjānī says that they are attained simply due to the grace (ʿināya) of God.⁴³

If fanā’ underlines the aspect of negation insofar as it is concerned with the negation of one’s being, attributes, and actions, tawḥīd, for Jurjānī, emphasizes the affirmative act insofar as one affirms the divine being, attributes and actions. In a

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⁴⁰ Risāla Shawqiyya, Istanbul Carullah MS 1006, 4b.
⁴¹ Ibid.
⁴² Ibid.
⁴³ Ibid.
parallel fashion, he then explains the three spiritual states, each corresponding to the attainment of oneness (tawḥīd) in a distinctive aspect:44 (1) *Tawḥīd-i afʿāl* (unity or oneness in actions) refers to the state when a seeker views that the only efficacy in any action belongs to God, and there is no cause in the world except for Him. (2) *Tawḥīd-i ṣifāt* (unity in attributes) refers to a state when the conventional distinctive sets of “attributes of beauty” (Ṣifāt al-jamāl) and of “attributes of awe” (Ṣifāt al-jalāl) are viewed as belonging only to God. Moreover, at this stage, Jurjānī says, the entire creation (maṣnūʿāt) is viewed as the locus of the manifestation of these divine attributes, such as knowledge, power, will, etc., and, for the seeker attaining this stage, all attributes are effaced except for those belonging to the divine. (3) *Tawḥīd-i dhāt* (unity in being) identifies the highest state of tawḥīd and fanāʿ when one witnesses (mushāhida) that there is no being except for God, and that the being of all created things is a manifestation of God.45 At this point, Jurjānī provides an important remark that underscores the limitation of the rational-theological project of reasoning.

“In *tawḥīd-i afʿāl*, there is scope for the intellect [in attaining it] to proceed by way of proof (*istidlāl*). And due to this reason, theologians (*arbāb-i kalām*) have established that, ‘there is no cause in existence except God’ (*lā muʾaththir fīʾl-wujūd illāʾillāh*). However, *tawḥīd-i ṣifāt* and *tawḥīd-i dhāt* can only be attained by means of unveilings (*mukāshafāt*), for its establishment does not occur through rational proofs.”46

44 Ibid., 4b-5a.
45 Ibid., 5a.
46 Ibid., 5a.
It is quite clear then that, for Jurjānī, rational-theological reflection is much more limited in the task of knowing God than the superior alternative of unveiling (mukāshafa) and vision (mushāhida) accorded by the Sufi path. The remark also displays a strong consistency in the intellectual theorizing of Jurjānī and the life he practically led. Notwithstanding he was a highly confident Ashʿarī theologian, he understood kalām’s limitation in the goal which mattered to him the most. The longing and desire for nearness with God could only be fulfilled through the Sufi way, one which he took to practicing quite diligently, as seen above.

In addition to this aspect of Sufism making possible an experiential knowledge of the oneness of God (tawḥīd), Jurjānī considered Sufism to be superior (than kalām) also on account of the strength of conviction (yaqīn) it produced in the truths of its knowledge. This is displayed through his understanding of the three levels of certainty (yaqīn), a motif which has its basis in the verses of Qur’ān and which frequently informed discussions in the epistemological-
mystical milieu. Jurjānī describes each by first using an example. The first level of certainty describes the conviction that is produced when a person hears that the city of Baghdād exists, such that he knows the report to be true and certain, possessing no doubts. The conviction that is engendered in relation to the existence of Baghdād is called ‘ilm al-yaqīn (lit., the knowledge of certainty). Next, if this person was to travel to a surrounding area of Baghdād and stands atop some height and looks onwards towards Baghdād, then the conviction he attains in relation to the existence of Baghdād is stronger than the previous one; this feeling of conviction is called ‘ayn al-yaqīn (lit., the witnessing of certainty). Finally, when this person enters Baghdād and roams around its districts, streets and markets, the certainty he attains through experiencing Baghdād is even stronger than the second type; this feeling of conviction is of the highest level and is called haqq al-yaqīn (lit., the reality of certainty).

Having explained the three levels of certainty with an example, Jurjānī turns to his main point: The real goal of humanity is to attain higher planes of certainty about the

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47 In the Qurʾān, one reads: “No! Only if you knew (it) with a sure knowledge (‘ilm al-yaqīn)! You will certainly see the Hell. Then you will see it with full certitude (‘ayn al-yaqīn),” (102:5-7); “But if he is one of the deniers, the astray. Then (for him) there is entertainment from boiling water, and burning in the Hell. Indeed, this is certainty in its true sense (haqq al-yaqīn),” (56:92-95); translations from the Qurʾān Karīm, trans. Muftī Taqī Uthmānī, accessed online at noorehidayat.org. On the use of the three terms in the various earlier authors, see R. D. Marcotte, “Resurrection (maʿād) in the Persian Hayāt al-Nufūs of Ismāʿīl Muhammad Ibn Rīzī (fl. ca. 679 / 1280): The Avicennan Background,” in Interpreting Avicenna: Science and Philosophy in Medieval Islam, ed. J. McGinnis with D. Reisman (Leiden: Brill, 2004): 213–35, esp. 229; and İhsān Fazlıoğlu, “Between Reality and Mentality,” 16-7. See also Jurjānī, Taʿrīfāṭ, 131 (“‘ilm al-yaqīn”), 134 (“‘ayn al-yaqīn”) and 80 (“haqq al-yaqīn”).

48 Risāla Shawqiyya, Istanbul Carullah MS 1006, 5a-b.
fact of their beginning and ultimate end (mabdaʾ wa maʿād). He, again, discerns between different approaches to attain the various kinds of certainty:

“The real perfection for humanity is to acquire the ranks of certainty about their beginning and ultimate end (mabdaʾ wa maʿād). In this regard, one can attain ‘ilm al-yaqīn by means of theoretical reflection (fikr), as the people of disputation and arguments (arbāb-i baḥth wa naẓr) have attained. One can attain ‘ayn al-yaqīn with regard to the beginning and ultimate end by way of spiritual self-discipline (mujāhidāt) and unveilings (mukāshafāt), as the people of unveilings (kashf, i.e., Sufis) have acquired. As for ḥaqq al-yaqīn which is momentary (lamḥātī) and illuminative (lamʿātī), it is attained by only those who are worthy (ahl) of it.”

It is worth recalling that the task of knowing the “beginnings and ultimate end” also featured as the central inquiry in his theological work seen earlier. It provided the context for Jurjānī to discern four different, well-established, and well-developed traditions offering distinct approaches to attaining that goal. While the different methods may succeed in attaining metaphysical knowledge, this passage highlights that the feeling of conviction that is produced by those methods is not the same; mutakallimūn, being people of disputation and arguments, can only attain to the first level of certainty (‘ilm al-yaqīn), while the second higher level of certainty in knowledge (‘ayn al-yaqīn) can only be attained by the Sufis, and the highest level of certainty (ḥaqq al-yaqīn), possibly only by those who are even more gifted amongst them. Similar to the case of attaining higher experiential levels of knowledge of tawḥīd, the task of attaining

49 Ibid., 5b.

50 Ibid.
certainty in knowledge also displays a limitation on the part of the rational-theological method utilized by the *mutakallimūn*, and confirms the Sufi path as a superior alternative.

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The picture that emerges from both Jurjānī’s *kalām* and Sufi writings is rather instructive in terms of mapping the epistemological aspects of the interface between Sufism and rational-theological thought. Jurjānī is putting together a coherent epistemological scheme formulated according to the tradition of Sufism and founded upon the authority of revelation and tradition, on one hand, and the components of rational-theological reasoning, on the other.51 Within this scheme, *kalām* is accommodated as an intellectual system that is ultimately inferior to the higher epistemology relating to the Sufi path52 providing access to higher experiential planes of knowledge and certainty through its practices of remembrance (*dhikr*) and contemplation (*murāqaba*). Yet for Jurjānī ultimately Sufism itself is grounded in and a realization of the Sharīʿa, which encompasses all the realities of religious life that are knowable.

51 Cf. Adi Setia, “*Kalām Jadīd*,” 3 (who quotes Naquib al-Attas, making a similar point in a more generalized manner).

52 Cf. Shihadeh, “Introduction,” 3 (who makes a similar point concerning Ghazālī’s “influential” synthesis: “Within this synthesis, Ashʿarī *kalām* is accommodated as an intellectual system that is ultimately inferior to a higher mystical theology relating to the Sufi path”).
APPENDIX A:

TRANSLATION OF FOUR TEXTS ON NAFS AL-AMR AND RELATED CONCEPTS BY JURJĀNĪ

A.1 Meaning of “Establishment of an Existent in the External World and Nafs al-Amr”


Text: This is because the absence of the principle of predicate in nafs al-amr does not necessitate the absence of predication in nafs al-amr. The result of this discussion is that if the source of a predicate (mabda al-mahmūl), such as entailment (al-luzūm), for example, is absent in nafs al-amr, then the predicate, such as the concept of the concomitant (mafhūm al-lāzim), will also be absent in it, because of the absence of its part. However, it does not follow from this that this non-existing predicate cannot predicate a thing in nafs al-amr. This is because it is permissible that the non-existing concepts (al-mafhūmāt al-‘admiyya) are true in nafs al-amr for the things that exist in it.

Does not one see that the concept of blindness does not exist in the external world, despite the fact that our statement that ‘Zayd is blind’ is true in the external world. Likewise, when one establishes the number four in the mind (taḥaqquqāt fi‘l-dhihn), it is qualified (muttasif) with evenness in nafs al-amr, even though one did not conceptualize evenness with it.
The exposition (tahqiq) of this matter is that an existent in the external world or in nafs al-amr is what the external world or nafs al-amr is, ultimately, on account of its establishment (tahaquqa) and its existence in itself (fi nafsih), not on account of being true (sidq) for something, or characterizing this thing with it – as witnessed in the two aforementioned examples.

This is because the meaning of the first [example] is that this [person] is characterized with blindness in the external world; it’s [meaning is] not that blindness is realized (mutahaqqiq) in the external world or established (thabit) for it. [This is] because the external world and nafs al-amr occur as a place (zarf) for characterizing the person himself (nafsih), not for the existence of blindness, or the concept of blind, or the concept of characterization. It does not entail that something from among these exists in the external world. However, truly, it is necessary for the truth of this proposition that Zayd must exist in the external world. Otherwise, one cannot characterize him with anything in the external world.

The meaning of the second [example] is that the number four is characterized in nafs al-amr with evenness. The truth of this judgment does not entail that evenness or the concept for evenness or characterization exists as among the existents according to nafs al-amr, irrespective whether in the external world or in the mind; but rather [the judgment] entails the existence of the number four according to itself (bi hasabih), even if only in the mind.

If you say that a characterization that is qualified for the external world or nafs al-amr entails that the one who is characterized exists in it, and entails also that the
attribute exists in it. I will reply that this is not necessary since by immediate understanding (badihāt al-‘aql) one can judge that when Zayd does not actually exist in the external world, certainly one cannot provide a characterization in it by means of establishing anything for him, irrespective whether that thing is an existent or a non-existent. And [it is not necessary] due to the fact that blindness does not exist in the external world despite being attributed to Zayd who exists in it. From there they have said that an affirmative, correct, extra-mental proposition being true necessitates the existence of its subject (mawḍu‘) in the external world, but not the existence of its predicates (maḥmūl).

The upshot [of the discussion] (ḥāṣil) is that the principle of predicates (mabādī al-maḥmūlāt) with respect to nafs al-amr can either be matters that exist with respect to their own selves (umūran mawjūdatun bī ḥasabihā), for example, whiteness. This is because it is a matter established (mutaḥaqiq) in the external world. Hence the intellect perceives (yudrikuhu) it, mentally conceives (yaʿtabiru) the concept of whiteness, and predicates (yaḥmilu) it for a body.

Or [the principle of predicates] can be matters that do not exist with respect to their own selves, for example, necessity and evenness and difference and likewise other mental constructions (umūr iʿtibāriyya). Their subjects are characterized with them in nafs al amr. When the intellect intends to judge the subjects with them, it conceptualizes them [i.e., subjects] and considers them. Thus they become at that time mental existents (mawjūdāt dhīhniyya). Then the intellect uses them [i.e., mental constructions] to provide judgments about these subjects that correspond to them in
nafs al-amr. [This is] despite the fact that we know without a doubt that subjects are characterized with them even before the intellect mentally constructs them and considers them alone.

Concerning what is imagined that establishing (thubūt) a thing for the other implies establishing the thing in itself, this is correct when its establishment for it is understood like the establishment of the accidents for their place. However, if one means by it that it is predicated of (ṣidq) it and qualifies (ittiṣāf) other with it, then it is not the case that the non-existents are predicated of the existents in the sense that they are realized (taḥaqquq) for them.

It cannot be said that essences are qualified with their necessary concomitants in nafs al-amr, irrespective of whether these essences exist in it or not; because the number four is even in the definition of itself (fī ḥadd nafsīhā). Because we will reply that we know necessarily that for what there is no establishment in any of the ways, it cannot be characterized by establishing a thing for it, as has been mentioned previously.

Concerning the necessary concomitant of an essence, its meaning is not that it is qualified with it irrespective whether it exists as one of the two existents [i.e., mental or extra-mental existence] or not. Instead, its meaning is that wherever it exists, it is qualified with it. [This is] because it is not for the features of either of the two existents to lead to its entailment; instead, the essence entails it with respect to its absolute existence (muṭlaq wujūdīhā).
A.2 Exposition of the Relation Between the External World, Mind, and Nafs al-Amr.


Text: As for the meaning of ṇafs al-amr, it is the matter itself, which is the thing itself – matter refers to the thing. The meaning of [a proposition] that the being of a thing exists in ṇafs al-amr is that it exists in respect of its own definition (fī ḥadd dhātiḥi). This means that its existence (wujūd), realization (taḥaqquq), and establishment (thubūt) are not due to someone putting forth a supposition or to someone making a mental construct. For example, the necessary concomitance between sunrise and the presence of daylight is established in its essential definition, irrespective whether there exists someone who puts forth a supposition or not, and also irrespective whether one puts it forth as a supposition or not.

Nafs al-amr is more general than the external world absolutely since whatever exists in the external world also exists in ṇafs al-amr. But converse does not hold true as a rule.

It is more general than the mind (dhīhn) from one aspect due to the possibility of believing falsehood, for example, that five is an even number, since it exists in the mind but does not exist in ṇafs al-amr. Examples similar to this are called mental, assumed [propositions] (dhīhn fard). The evenness of number four exists in both [i.e., in the mind and in ṇafs al-amr]. Examples similar to this are called mental, true [propositions] (dhīhnī ḥaqiqi).
A.3 On *Nafs al-Amr* and the Difference Between It and the External World and the Mind


**Text:** This treatise is an exposition of *nafs al-amr* and the difference between it and the external world (*al-khārij*) and the mind (*al-dhihn*).

Know that the establishment (*taḥqīq*) of things is either an intellectual supposition (*farḍ ’aqli*), which is only present in the perceptual faculties, or a real (*ḥaqīqī*) [supposition], which is present outside the perceptual faculties, irrespective whether the intellectual supposition exists or does not exist. Regarding it, it is said that it is present in the fact of the matter (*fī nafs al-amr*).

The real will be either by means of reflection on itself (*anfusīha*), or by means of the relationship to what is external to itself, which is named the external world (*al-khārij*).

*Nafs al-amr* is external to the perceptual faculties. It is more general than the external world, and the external to the mind (*al-khārij min al-dhihn*). However, by another meaning, which is to say what exists in the mind is true in the external world would mean that it is an existent in the mind, not that it is an existent in the external world. Likewise, by relating to what is according to itself as well.

When *nafs al-amr* is more general than the external world, whenever a meaning is true in the external world, it is true in *nafs al-amr*. For example, when it is true that a
body is a compound in the external world, then it is true that it is a compound in nafs al-

amr.

But when it is true in nafs al-amr, in the sense that it is itself like that, then it will

not be true according to the external world if it does not exist in it. [This is] because

what is not present in the external world cannot be attributed with a thing in the

external world. However, it is permissible that by reflecting on itself [one knows] that it

is like that. While it is true that blackness that is non-existing in the external world is a

color in its own self, however it is not true that it is a color in the external world.

This is a positive judgment. As for the negative [judgment], nafs al-amr is

particular than the external world. When it is true that blackness is not whiteness in nafs

al-amr, it is also true according to the external world, but converse does not hold. For

example, while it is true that blackness, when it does not exist in the external world, is

not a color in the external world, it does not hold true according to nafs al-amr. This is

because you would know that the opposite of the general is more particular than the

opposite of the particular.

The conditions of the things in terms of dependency, independency, necessity,

entailment, essential accidents, essences, and mental constructions are known by their

establishment in and of themselves, and many mistakes arise because the judgment of

nafs al-amr is confused with the judgment of the external world or the mind.

One who has ascertained the central point of the discussion here, it becomes

easy for him to study the realities (al-ḥaqāiq) and fine intricacies (al-daqāiq). Rather, in

fact, [what becomes easy for him is] the wisdom (ʿirfān) of rational sciences (al-ʿulūm al
ʿaqliyya) as opposed to its knowledge (maʿrifa), like a person for whom the matter is
difficult (mutaʿazar). This task is achieved by way of what we have written here as an
exposition of nafs al-amr and the difference between it and the external world and the
mind.

This completes the treatise in the exposition of nafs al-amr written by Sayyid al-
Sharīf al- Jurjānī.

A.4 On the Meaning of the Truth of a Proposition

Source: Jurjānī, Ḥāshiya ʿalā Sharḥ Tajrīd, MS 865 [988H], Robert Garrett
Collection, Princeton University Library, 66b-67b.

Text: It will be replied: the correctness and truth of a judgment can be because
of its conformity to the external world, or can be because of its correspondence to nafs
al-amr, as opposed to the external world. The details of this topic are that the
proposition whose veracity needs to be ascertained is of four types:

First: A judgment about the external world (khārijiyya) by means of external
entities (umūr khārijiyya), i.e., by means of things existing externally
about things of its like.

Second: A judgment about intelligible entities (ʿaqliyya) by means of intelligible
entities.

Third: A judgment about things existing externally by means of intelligible
entities.
Fourth: A judgment about intelligible entities by means of things existing externally.

This last type disallows the correctness and truth of a positive judgment because of the impossibility of the situation that a thing existing externally can be established for what is an intelligible entity having no existence in the external world.

Concerning the first type, the correctness and truth of a judgment being on account of the judgment’s correspondence to the external world means that one of the two existents in the external world is related to the other in the external world in a manner upheld by the judgment. It does not entail from this that the relation of one of the two existents to the other exists in the external world because of what you know that the external world occurring as a place (zarf) for the relation itself (nafs al-intisāb) does not necessitate it occurring as a place for the existence of the relation (wujūdihi).

Concerning the second type, the truth of a positive judgment is on account of its correspondence to nafs al-amr. One must not think here of a correspondence to the external world since neither of the two sides of the judgment [i.e., the thing which the judgment is about and the thing by which one judges] exists in the external world. Hence it is not possible at all to relate one to the other in the external world.

Concerning the third type, the truth of a positive judgment can either be on account of its correspondence to nafs al-amr, as witnessed in our statement: “a human is possible.” This is because a human is qualified with possibility irrespective whether he exists in the external world or not. Or it can be on account of its correspondence to the external world, as seen in your statement, “Zayd is blind,” because Zayd is not qualified
with the condition known as blindness except in the external world only. The latter situation refers to what is said that the things existing externally can be qualified in the external world with non-existing things (umūr ‘adamiyya), and that the absence (intifā) of the principle of predicate in the external world does not necessitate the absence of predication in the external world, and that positively affirming a thing for another thing with respect to the external world is dependent upon the existence of the latter in the external world. This is because a thing non-existing in the external world cannot actually be related in the external world by something, nor can it actually be dependent upon the existence of this thing.

If you ask: what is the meaning of external world (al-khārij), and the meaning of nafs al-amr, and the relation between both?

I will say: you already know that existence is of two types: foundational existence (wujūd aṣīl) upon which effects are based, and from which judgments proceed; and shadowy existence (wujūd ẓillī) which is not like this. Shadowy existence cannot be conceived of except only in the perceptual faculties, and for this reason is known as mental existence (wujūd dhihni). Foundational existence does not occur except outside the perceptual faculties. Thus, the external world (khārij) stands opposite to the mind (dhihn).

Concerning nafs al-amr, its meaning is the very thing (nafs al-shay’) in respect of its own definition (fī hadd dhātihī); what is intended by al-amr is the thing itself. Thus when we say: a thing exists in nafs al-amr, its meaning is that it exists in respect of its own definition. The meaning of its existence (kawn) present in respect of its own
definition is that its existence is such not due to the posit of one positing, nor to the supposition of one supposing, but rather if one were to disregard all considerations and suppositions, it will be existing. This existence is either foundational existence or shadowy existence. Thus *nafs al-amr* encompasses the external world (*khārij*) and the mind (*dhihn*). However it is more general than the external world, unconditionally, because whatever is in the external world is definitely in *nafs al-amr*; but is more general than the mind from a certain respect, since whatever is in the mind is not always in *nafs al-amr*. This is because when one believes that five is even, this belief is false and does not correspond to *nafs al-amr* despite being present in the mind. This is the reason he said: it is not on account of its correspondence with what is acquired in the intellect.

Concerning what is said that the *nafs al-amr* is the Active Intellect, and that every judgment that conforms to what is in it is true, otherwise it is false: there is weakness in this view (*fīhī buʿd*) because the only evidence that the expression carries this meaning is by way of an extremely far-fetched assumption (*wajh baʿīdan jiddan*), which is that one takes *al-amr* here in opposition to the created world (*al-khalq*), and by *nafs al-amr* intends the realm of forms abstracted [from matter] (*ʿālam al-mujarradāt*). It is difficult (*yataʿadhdharu*) also in this case to characterize judgments established in the Active Intellect with truth and conformity to the *nafs al-amr*.

One can also raise an objection based on what they maintain that the impression of the intelligible forms is in an immaterial substance (*jawhar mujarrad*), which is a storehouse (*khazīna*) for the rational soul. They have proved this based on the
distinction between the state of inattentiveness and forgetfulness. Since the distinction is also possible for false judgments (ahkām kādhiba), it entails that their impressions are also present in it. Thus, in this case [of false judgments], if the judgment corresponding to what is impressed in it is true in nafs al-amr, then these false judgments will be true in nafs al-amr.


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