

Freeing Philosophy from Metaphysics: Fakhr al-Dīn al-Rāzī's Philosophical
Approach to the Study of Natural Phenomena

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by

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Abstract

This dissertation examines the views of Fakhr al-Dīn al-Rāzī (d. 1210) as advanced in his two major philosophical works, *al-Mabāḥith al-Mashriqiyya* and *al-Mulakhkhaṣ fī al-Ḥikma*. It argues that Rāzī seeks to develop a philosophical programme that provides an alternative to the Aristotelian theory of scientific knowledge. The work is divided into two parts. Part I reconstructs the central components of Rāzī's logical system, including his theory of universals, his view of the role and nature of definitions in philosophical analysis, and the alternative theory of predication that he advances in place of Aristotle's theory of predication. Part I focuses on the epistemological and logical programme that, in Rāzī's view, should precede the analysis of problems in the philosophical or post-logical part of the *Mabāḥith* and *Mulakhkhaṣ* (namely, Books I to III of both works). Part I consists of four chapters and a background discussion. The background discussion examines aspects of the Aristotelian theory of demonstrative science and Avicenna's interpretation of the Aristotelian theory, focusing on the nature of *per se* predication. Chapter 1 assesses the epistemological principles and views that Rāzī sets out in logic. Rāzī's discussion underscores a number of problematic epistemological assumptions in the Aristotelian theory of definition and concept acquisition, which he believes should not encroach on the logical analysis. Chapter 2 focuses on Rāzī's critique of *per se* predication on which demonstrative science is based and the alternative theory of predication that he advances. His alternative theory is based on the notion of "structured universals" as opposed to essences and *per se* properties. Chapter 3 examines Rāzī's critique of real definitions and assesses his view of nominal definitions. Rāzī advances nominal definitions as the alternative to real definitions. Chapter 4 examines how Rāzī's epistemological and logical programme informs his restructuring of philosophical discourse. I argue that the organization and order of the *Mabāḥith* and *Mulakhkhaṣ* are based on the alternative approach that he advances, which no longer preserves the standard ordering of the Aristotelian sciences. Here, metaphysics, construed as the highest science in the Aristotelian scientific system, no longer occupies a privileged position. Foundational ontological positions – such as, form-matter analysis, the theory of the four causes, or even atomism – are no longer presumed in the analysis of the nature of sensible objects, which Rāzī takes up in the lengthy Book II of the *Mabāḥith* and *Mulakhkhaṣ*. I conclude Part I with a postscript that examines aspects of the nature of Aristotelian logic, particularly in authors preceding Avicenna.

Part II consists of two chapters, which examine his philosophical positions that follow, and are based on, his logical analysis, focusing primarily on views set out in Books I and II. Chapter 5 examines ontological problems relating to Avicenna's doctrine of the quiddity and Aristotelian form-matter analysis. It consists of a close textual analysis of a number of Rāzī's chapters in Book I of the *Mabāḥith*. I attempt to show that Rāzī read Avicenna's texts quite closely and that he sharply departs from Avicenna on central ontological questions. I argue that Rāzī's departure is informed by the philosophical programme that he advances in logic. Chapter 6 examines core elements of Rāzī's epistemology and psychology. The chapter expands on a number of epistemological problems that were only pointed out in his logical analysis, such as his

rejection of the theory of mental forms. I argue that a core motivation for Rāzī's opposition to the Avicennan theory of mental forms derives from Rāzī's views on optics. Rāzī opposes the Avicennan theory of the "impression" of sensible forms (*simulacra*) and suggests that the perception of complex sensible forms involve processes that are more mind-dependent than allowed for by Avicenna's theory.

Résumé

Cette thèse examine la pensée de Fakhr al-Dīn al-Rāzī (m. 1210) telle que déployée dans ses deux œuvres philosophiques majeures, *al-Mabāḥith al-Mashriqiyya* et *al-Mulakhkhaṣ fī al-Ḥikma*. J'y avance l'idée que Rāzī entend développer un programme philosophique offrant une alternative à la théorie aristotélicienne de la connaissance scientifique. Elle s'articule en deux parties. La première restitue les composantes centrales du système de logique de Rāzī, y compris sa théorie des universaux, ses positions sur le rôle et la nature des définitions dans l'analyse philosophique ainsi que sa propre théorie de la prédication qui se propose de remplacer son équivalent aristotélicien. Cette première partie se concentre sur les programmes épistémologique et logique qui, selon Rāzī, doivent précéder l'analyse des problèmes développés dans les parties philosophique ou post-logique des *Mabāḥith* et du *Mulakhkhaṣ* (c'est-à-dire les Livres I à III dans ces deux œuvres). Cette première partie inclut quatre chapitres précédés d'une discussion préliminaire. Le but de cette introduction est d'examiner certains aspects de la théorie aristotélicienne de la science démonstrative et son interprétation par Avicenne, particulièrement concernant la prédication *per se*. Le premier chapitre évalue les principes épistémologiques et les positions que Rāzī pose en logique. L'analyse avancée par Rāzī souligne un certain nombre de présupposés épistémologiques problématiques de la théorie aristotélicienne de la définition et de l'acquisition des concepts, qui, selon lui ne devraient pas s'immiscer dans l'analyse logique. Le second chapitre se concentre sur la critique razienne de la prédication *per se*, sur laquelle se fonde la science démonstrative, et sur la théorie de la prédication que ce dernier propose en lieu et place de cette dernière. Cette théorie alternative est fondée sur des « universaux structurés » plutôt que sur des essences et des propriétés *per se*. Le troisième chapitre examine la critique formulée par Rāzī contre les définitions réelles et analyse ses positions sur les définitions nominales qu'il propose comme alternatives aux premières. Le quatrième chapitre examine la manière dont le programme épistémologique et logique de Rāzī informe sa restructuration du discours philosophique. Je défends l'idée que l'organisation et l'ordre des *Mabāḥith* et du *Mulakhkhaṣ* s'appuient sur l'approche alternative qu'il propose qui ne conserve plus la hiérarchie habituelle des sciences que l'on trouve chez Aristote. La métaphysique n'occupe plus la position première et privilégiée qu'elle a dans le système scientifique aristotélicien. Des positions ontologiques fondamentales, telles que les formulations forme-matière, la théorie des quatre causes ou même l'atomisme ne sont plus présupposés dans l'analyse de la nature des objets sensibles à laquelle s'attaque Rāzī dans le volumineux Livre II des *Mabāḥith* et du *Mulakhkhaṣ*. Je conclus cette première partie avec une note complémentaire sur certains aspects de la nature de la logique aristotélicienne, notamment chez des auteurs antérieurs à Avicenne.

La seconde partie se subdivise en deux chapitres et examine les positions philosophiques de Rāzī qui découlent et sont fondées sur son analyse de la logique. Je m'y concentre principalement sur les positions avancées dans les livres I et II. Le premier de ces deux chapitres (chapitre 5 de la thèse), examine des problèmes ontologiques liés à la doctrine avicennienne de la quiddité et à l'analyse forme-matière chez Aristote. Il suit une analyse textuelle attentive d'un certain nombre de chapitres du Livre I des *Mabāḥith*. Je tente de montrer que Rāzī a lu le corpus avicennien de près et qu'il s'en éloigne de manière radicale par rapport à des questions ontologiques centrales. Je défends l'idée que cet éloignement est informé par le programme philosophique qu'il établit dans la logique. Le dernier chapitre examine des éléments au cœur de l'épistémologie et de la psychologie de Rāzī. Ce chapitre débouche sur un certain nombre de problèmes épistémologiques, tels que son rejet de la théorie des formes mentales, qui ne sont qu'évoquées rapidement dans son analyse de la logique. Je défends l'idée que l'une des motivations centrales de l'opposition de Rāzī à Avicenne découle de sa pensée sur l'optique. Rāzī s'oppose à la théorie avicennienne de l'« impression » des formes sensibles (*simulacra*) et avance l'idée que la perception des formes sensibles complexes implique des processus qui dépendent plus de l'esprit que ne le permet la théorie avicennienne.

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Introduction

That Ghazālī's attack on *falsafa* (i.e., Greek philosophy in Islam) dealt a decisive blow to the flourishing of philosophy and science in the following centuries is a notion that has come under intense scrutiny in recent years. Historians of philosophy and science are reassessing the once widely accepted thesis that scholarly activity declined in later Islam. An important consideration in this regard has been the significant amount of works produced in the post-classical period (i.e., roughly from 1200 to 1900 AD) that have yet to be examined.¹ These works generally fell under the rubric of "the rational sciences" (*al-ʿulūm al-ʿaqliyya*), which cover a wide range of core philosophical topics, including semantics, logic, metaphysics, natural philosophy and theology. The great bulk of these works, however, remains to be edited and critically assessed for their philosophical and scientific value. Scholarship is beginning to conduct focused and systematic research on the intense productive activity of later thinkers. One figure gaining prominence for his role in later Islamic thought is the philosopher and theologian, Fakhr al-Dīn al-Rāzī (d. 606 AH/1210 AD), who straddles the classical and post-classical periods.²

¹ See Robert Wisnovsky, "The Nature and Scope of Arabic Philosophical Commentary in Post-classical (ca. 1100-1900 AD) Islamic Intellectual History: Some Preliminary Observations," in P. Adamson, H. Baltussen and M.W.F. Stone, eds., *Philosophy, Science and Exegesis in Greek, Arabic and Latin Commentaries*, vol. 2 (London: Institute of Classical Studies, 2004), 149-191; on the history of science in Islam, see, A. I. Sabra, "The Appropriation and Subsequent Naturalization of Greek Science in Medieval Islam: A Preliminary Statement," *History of Science* 25 (1987), 223-243 and his "Science and Philosophy in Medieval Islamic Theology," *Zeitschrift für Geschichte der Arabisch-Islamischen Wissenschaften* 9 (1994), 1-42. For more recent and specialized works see works cited in the following notes.

² The sources tell us that he was born in 534/1149 or 535/1150; see Frank Griffel, "On Fakhr al-Dīn al-Rāzī's Life and the Patronage He Received," *Journal of Islamic Studies*, 18 (2007), 315-16. After a sparse history of scholarship on Rāzī, there has been a burst of research within the last decade devoted to specific areas of his philosophy and theology, as represented in the following works: R. Arnaldez, *Fakhr al-Dīn al-Rāzī: commentateur du Coran et philosophe* (Paris: J. Vrin, 2002); Heidrun Eichner, "Dissolving the Unity of Metaphysics: From Fakhr al-Dīn al-Rāzī to Mullā Ṣadrā al-Shirāzī," *Medioevo* (2007), 139-197; Jules

The major works of Rāzī, however, remain largely unexplored. This includes his two most important works of philosophy, *al-Mulakhkhaṣ fī al-Ḥikma wa-l-Manṭiq* (*The Compendium in Philosophy and Logic*) and *al-Mabāḥith al-Mashriqiyya* (*Eastern Investigations*). The principal aim of this dissertation is to reconstruct the philosophical system advanced by Fakhr al-Dīn al-Rāzī in the *Mulakhkhaṣ* and the *Mabāḥith*. I argue that the two works advance an epistemological and logical programme that serves as the foundation of a unique approach to the study of natural phenomena. Scholars have assessed aspects of how the *Mulakhkhaṣ* and the *Mabāḥith* influenced the structure – and, to a lesser extent, the content – of later philosophical and theological works.³ However, no systematic attempts have been made to understand what may have philosophically motivated Rāzī in writing and structuring the two works in the way that he has. The primary aim of my dissertation is to answer this question.

Structure and Argument

The dissertation is divided into two parts. Part I assesses the epistemological and logical programme of Rāzī. I focus on Rāzī's development of a logical programme that is meant to precede the philosophical discussion that Rāzī conducts in Books I to III of the

Janssens, "Ibn Sīnā's Impact on Faḥr al-Dīn al-Rāzī's *Mabāḥith al-Mashriqiyya*, with Particular Regard to the Section Entitled *al-Ilāhiyyāt al-maḥḍa*: An Essay of Critical Evaluation," *Documenti e studi sulla tradizione filosofica medievale* 21 (2010), 259-285; A. Setia, "Fakhr al-Dīn al-Rāzī on Physics and the Nature of the Physical World: A Preliminary Statement," *Islam & Science* 2 (2004), 161-180; Ibid., "Time, Motion, Distance and Change in the *Kalām* of Fakhr al-Dīn al-Rāzī: A Preliminary Survey with Special Reference to the *Maṭālib al-ʿĀliyyah*," *Islam & Science* 6 (2008), 13-29; Ibid., "Atomism and Hylomorphism in the *Kalām* of Fakhr al-Dīn al-Rāzī: A Preliminary Survey of the *Maṭālib al-ʿĀliyyah*," *Islam & Science* 4 (2006), 113-140; Ayman Shihadeh, *The Theological Ethics of Fakhr al-Dīn al-Rāzī* (Leiden: Brill, 2006); Ibid., "From al-Ghazālī to al-Rāzī: 6th/12th Century Developments in Muslim Philosophical Theology," *Arabic Sciences and Philosophy*, 15 (2005), 141-179; Tony Street, "Faḥraddīn al-Rāzī's Critique of Avicennan Logic," in Dominik Perler and Ulrich Rudolph, eds., *Logik und Theologie: das Organon im arabischen und im lateinischen Mittelalter* (Leiden: Brill, 2005).

³ Eichner, "Dissolving the Unity of Metaphysics"; Frank Griffel, "Fakhr al-Dīn al-Rāzī", in *Encyclopedia of Medieval Philosophy: Between 500 and 1500*, ed. Henrik Lagerlund (New York: Springer, 2011), 343-344.

Mabāḥith and the *Mulakhkhaṣ*. The logical programme seeks to clarify a number of epistemological assumptions that, in his view, are central to the Aristotelian view of demonstrative knowledge and science. His clarification of epistemological problems leads him to develop an alternative theory of the methodological tools of philosophical inquiry. In particular, Rāzī proposes a view of definitions and universals that seeks to replace the Aristotelian theory of real definitions and essential predication, that is, *per se* predication on which the theory of demonstrative science is based. Rāzī’s own theory of predication, grounded in what I term a *structured universal*, is developed in light of the principles of his logical programme. That is, Rāzī wants a theory of universals that does not presume the essentialism of the Aristotelian theory.⁴ Part I thus shows that Rāzī has a methodological agenda that focuses particularly on the core assumptions of the Aristotelian theory of science. This critical agenda is to mark out a logical theory of universals and predication that is “neutral” with respect to the epistemological and ontological principles of the Aristotelian system. His methodological programme leads to the development of his own approach to philosophical and scientific inquiry, which Rāzī conducts in the sections of the *Mabāḥith* and the *Mulakhkhaṣ* that are meant to follow the logical analysis. Importantly, Rāzī’s focus in all this will be on our knowledge of sensible or natural phenomena.

Part II will examine how the logical programme informs core components of his philosophical analysis. By “philosophical”, I specifically mean his analysis in Books I to III of the *Mulakhkhaṣ* and the *Mabāḥith* that directly follows his logical analysis. Rāzī distinguishes a narrow set of epistemological and ontological problems that are relevant

⁴ What Aristotelian essentialism means here is clarified below.

to his logical discussion, and defers his fuller assessment of epistemological, psychological, and ontological problems to the domain of what he calls *ḥikma* or “philosophy proper”. As such, Part II focuses on Rāzī’s analysis of problems in philosophy proper. It focuses on reconstructing Rāzī’s positions on central problems in ontology as well as his theory of knowledge. His ontological views, particularly his critique of Aristotelian form-matter analysis, leads to an alternative approach to the study of natural phenomena. Rāzī’s theory of knowledge, I argue, is based on his philosophical views on problems in optics. The analysis of his theory of knowledge will shed light on aspects of what philosophically motivates Rāzī to develop, in the first place, his epistemological and logical programme. The primary aim of Part II is to show that Rāzī develops systematic philosophical positions, which diverge from the Aristotelian view, by following the “neutral” methodological programme that he develops in logic.

I turn now to take a closer look at the chapters of my dissertation. Part I consists of a background discussion and four chapters. The background provides an analysis of core elements of the Aristotelian theory of definition and demonstrative science. I will especially focus on the interpretation of Avicenna (d. 428/1037), who, for Rāzī, is the most important source on Aristotelian philosophy. I will also examine Rāzī’s analysis of Avicenna’s view of *per se* predication in *al-Ishārāt wa-l-Tanbīhāt* and *Kitāb al-Burhān* (*The Book of Demonstration*), the latter being Avicenna’s version of Aristotle’s *Posterior Analytics*. The section will provide a number of foundational concepts that our analysis of Rāzī’s logical programme will require.

In the following three chapters, I reconstruct the major components of Rāzī’s critique of the Aristotelian theory of demonstrative science. The focus will be on real

definitions, concept acquisition, and the primary kinds of *per se* predication, all of which are central elements of Avicenna's interpretation of demonstrative science. Rāzī believes that various epistemological assumptions encroach on the logical discussion of demonstrative knowledge and science. A number of these problems apply specifically to Avicenna's interpretations or systematizations of Aristotle's thought. This we will see is particularly the case regarding aspects of Rāzī's treatment of definition and concept acquisition.

However, Rāzī's fundamental problem centers on the very nature of Aristotelian demonstrative science. That is, he is interested in scrutinizing the relations that hold between the essences of things, as construed by the Aristotelians, and their properties. Ultimately, Rāzī finds highly problematic the Aristotelian analysis of universals as essences defined by internal or constitutive properties, which in turn (causally) explain the non-constitutive or external properties belonging to that essence, a theory which grounds the entire Aristotelian system of scientific knowledge. Rāzī understands that the necessary nature of scientific knowledge afforded by demonstrative syllogisms derives ultimately from the predicative relations that hold in immediate or "unmiddled" premises. Immediate premises are those that are grounded in real definitions and cannot be demonstrated by means of syllogistic reasoning. Here, Rāzī is specifically concerned with the immediacy and necessity of premises that apply to sensible things. Indeed, my analysis will show that Rāzī's main concern regarding the Aristotelian account of scientific knowledge relates to the nature of our knowledge of sensible phenomena. He will systematically distinguish between what he views as the phenomenal properties of a sensible thing and its essential or noumenal properties. In his view, the Aristotelians have

not established that we have access to the constitutive parts of essences (i.e., the genus and the differentia of a thing). That is, assessing the internal structure of essences is beyond the means of our logical tools. The goal of Rāzī's logical critique is to show that we cannot affirm knowledge of the essences of things and their constituent parts without committing to a number of epistemological assumptions. Rāzī believes that his arguments establish that our pre-scientific concepts cannot be rendered scientific, in the required Aristotelian sense, by real definitions. In Rāzī's view, concepts, as first principles of deductive proofs, are analytic (in a sense to be defined below) and do not provide any non-trivial cognitive content.

In Chapter 1, I examine what precisely troubles Rāzī about the epistemological foundations of Aristotelian logic. The focus in Chapter 1 will be on Rāzī's critique of the Aristotelian method of definition and Rāzī's clarification of what properly constitutes both simple and composite universals. However, in Chapter 1, I will also assess the building blocks of his logical programme, focusing on our knowledge of sensible simples. He employs, for example, the rule of what I label the *Indefinability of Sensible Terms* to oppose the Aristotelian scientific definitions for sensible qualities (e.g., heat, color, and so on). He argues that our prescientific concepts of simple qualities, as picked out by our terms in ordinary language, provide the most certain epistemological basis for a neutral logical analysis. With regard to complexes or sensible composites, Rāzī systematically distinguishes between the concepts of "named things" and the essences of sensible objects (specifically, the real genus and real differentia). Rāzī affirms that knowledge of the latter kind of universals, that is, Aristotelian essences, is beyond our grasp.

On these grounds, Rāzī departs from the Aristotelian theory of universals and attempts to build a theory that is founded on concepts identified by ordinary-language terms and nominal definitions (*al-ḥadd bi-l-ism*). In Chapter 1, I will examine a few examples from his philosophical analysis (i.e., from philosophy proper) to illustrate the application of Rāzī's logical analysis to particular problems. Chapter 1, however, leaves a number of problems unexamined, including the nature of composite universals, his theory of predication and his notion of nominal definitions. Rāzī's notion of composite universals and predication will be examined in Chapter 2. Chapter 3 examines his "analytic" arguments against real definitions and his alternative theory of nominal definitions.

More specifically, in Chapter 2, I examine how Rāzī problematizes the notion of universals or essences as being "constituted" by essential properties or internal parts. The chapter assesses Rāzī's analysis of problems concerning the mereology of universals, i.e., the analysis of relations that hold between parts and wholes. In the Aristotelian view, external or non-constitutive properties are viewed as dependent on the essential or constitutive properties of an essence. For example, "rational" and "animal" are viewed as constitutive parts of the essence "man". Properties, such as "risible" or "capable of writing", which are external to the essence of "man", are viewed as inhering in the constituted essence. That is, these external properties are dependent on the constitution of the essence by parts, whereas the constitutive parts are not dependent on properties that are external to, or non-constitutive of, the essence. In opposition to this view, Rāzī argues that the dependency relation can be viewed as being symmetrical, a point which leads to his development of the theory of structured universals. In doing so, Rāzī sharply departs

from the Aristotelian theory by formulating a view of universals that no longer presumes a hard distinction between a part and inhering properties. Here, Rāzī's analysis considers an element that is not envisioned in the Aristotelian theory, namely, the structuring property or principle (*al-hay'a al-ijtimā'iyya*). The structuring property accounts for the unity of complex universals so that complex universals are not simply aggregates or collections of parts and properties. Significantly, the structuring property attempts to explain unity without appealing to metaphysical principles, or the methods of division and definition, that ground the unity of Aristotelian scientific definitions. In Part II, I argue that Rāzī's notion of structured universals was formulated in light of the philosophical lessons that he derives from developments in optical theory.

As mentioned, the unity that Rāzī aims to explain in logic is not the metaphysical unity of essences or substances that is required by the Aristotelians. Rather, Rāzī requires, and refers only to, the phenomenal unity of the universals of complex sensible things. Here, Rāzī pushes the discussion of the unity of universals towards epistemology rather than ontology. He construes structured universals as primarily identifying and explaining the phenomenal properties of composite sensible things and not their noumenal properties. The analysis shows that Rāzī's theory of universals presumes an epistemological programme that is neutral with respect to essences. His analysis signals a shift from a theory of universals that presumes knowledge of essences and its constituents to one that is limited to phenomenal knowledge of sensible reality, a shift that is anticipated in Chapter 1. However, what, in the first place, motivates Rāzī to develop a theory that distinguishes sharply between noumenal and phenomenal knowledge, and

what, moreover, motivates him to advance an alternative account of the nature of phenomenal knowledge, are questions that I take up in Chapter 6 of Part II.

The analysis in Chapters 1 and 2 leads to Rāzī's *analytic* critique of real definitions in Chapter 3 and his advancement of nominal definitions in their stead. Rāzī's critique of the method of real definitions in Chapter 1 was aimed at the epistemological assumptions of viewing real definitions as a means to acquiring scientific concepts, or knowledge of essences. In Chapter 3, however, Rāzī will examine definitions as statements whose predicates are constitutive properties or parts of the definiendum. His aim here is to examine specifically how necessity might enter such statements, without taking into consideration the extra-logical or epistemological concerns that we discuss in Chapter 1. That is, he assesses whether the analysis simply of the parts and properties of a complex sensible item, *x*, without presuming a method that gives the analyst access to the essential properties of *x*, can explain the necessity required in *per se* predications. Here, we find that Rāzī distinguishes between the *de re* necessity, which is said to hold in the immediate premises used in syllogistic demonstrations, and *de dicto* necessity. In brief, a predicate is said to hold of subject with *de re* necessity, if the necessity derives directly from the nature of the subject of the statement. As will be clarified, this is the relevant sense of *de re* necessity that will preoccupy Rāzī. Rāzī seems to be one of the first philosophers to make this distinction in the context of criticizing the Aristotelian theory. He argues against the possibility that definitions provide knowledge of *de re* necessity. This constitutes the final component of Rāzī's theory of predication that I examine. That is, Chapter 3 establishes that, according to Rāzī, the necessity of immediate propositions (i.e., those that are not proven by deductive proof) can only derive from our pre-scientific

or “analytic” concepts, as provided by nominal definitions. As such, real definitions have no role in Rāzī’s approach to scientific inquiry. This also completes our analysis of Rāzī’s critique of the Aristotelian theory of demonstration. The two kinds of *per se* predication (i.e., *e1*-predication and *e2*-predication discussed below), on which the theory of demonstrative science is based, can no longer be viewed as holding in terms of a *de re* necessity. As such, Rāzī will need to establish an alternative approach to the analysis of natural phenomena. Here, it should be noted that, in Chapter 3, I shall also attempt to show how Rāzī distinguishes nominal definitions, as a tool for scientific inquiry, from lexical or conventional definitions based on his theory of predication outlined in Chapter 2.

Chapter 4 examines how Rāzī’s logical programme, as established in the previous sections, leads to his restructuring of philosophy in the *Mulakhkhaṣ* and the *Mabāḥith*. The focus will be on Book II of Rāzī’s *Mabāḥith* and *Mulakhkhaṣ*, which aims to study the phenomenal objects of sensible reality. Chapter 4 will examine Rāzī’s view of the Aristotelian categories and how it relates to his division and analysis of topics in Book II of the *Mabāḥith* and the *Mulakhkhaṣ*. Further, I will show that the *Mabāḥith* and the *Mulakhkhaṣ*, as philosophical works, follow the same philosophical programme and are united by the epistemological programme he advances. That is, because Rāzī departs from the theory of science established in the *Posterior Analytics*, the very notion and ordering of the Aristotelian sciences as autonomous and hierarchically related disciplines no longer holds. The Aristotelian theory, as discussed in Chapter 4, is based on the view that the subject-matter of a science designates a particular ontological domain. Real definitions provide us access to the essential character of the subjects or members of each

ontological domain and their properties. As such, the tools of Aristotelian logic ensure the correspondence of the subject-matter of each science to an ontological domain. Rāzī, however, rejects the tools and concepts that help mark out the proper metaphysical domains. In this light, the new structure he gives to his philosophical works is marked by an epistemological turn. Chapter 4 will examine the exact nature of the epistemological turn that Rāzī envisions in the *Mabāḥith* and the *Mulakhkhaṣ*.

It should be noted here that my discussion, particularly in Part I, proceeds in stages. That is, I begin by scrutinizing the primary building blocks of Rāzī's system, without fully introducing the higher-level concepts that Rāzī will use to resolve problems raised by his preliminary analysis. As such, the reader will find that a good number of problems will be deferred to a later discussion in the same, or a subsequent, chapter. For this reason, I have provided the above outline of my argument so that the reader can keep track of the major problems and where they will be addressed.

There are several questions that the above summary may raise, most of which I hope will be resolved in the course of my analysis. However, the following addresses some of the more basic issues. In the above discussion I have referred to the "neutrality" of logic that is demanded by Rāzī. Here I consider two levels of neutrality. The first is the relatively strong level of neutrality that Rāzī aims for in his introductory or cautionary remarks in logic. My analysis will underscore a distinction between his logical approach to certain questions, such as real definitions and structured universals (as discussed in Chapters 2 and 3), and his "extra-logical" or epistemological discussion (as discussed in Chapter 1). His extra-logical analysis is conducted in his logic section of the relevant works but assesses specific epistemological problems that relate to the Aristotelian view

of universals and definitions. Rāzī's primary aim, as noted above, is to clarify and mark out the epistemological assumptions that he refuses to include in his own logical system. As my analysis shows, Rāzī's logical or "analytic" critique of real definitions and his analysis of universals presumes that those epistemological problems have been clarified.

The second level of neutrality that Rāzī demands is weaker than the first and concerns primarily ontological commitments that seem to intrude on logic. This applies particularly in the context of the interpretation of Aristotle's *Organon* by Avicenna and his predecessors. Here, two important questions regarding the logical nature of the *Organon* concern us: the role and status of its first book, the *Categories*, and the place of form-matter analysis in discussions of definition and demonstration. In the Postscript to Part I, I provide some historical background to these problems. As we will see, Rāzī's stronger claims regarding neutrality exclude *a fortiori* form-matter analysis. In the Postscript, I will simply raise what I think are some central questions that remain to be assessed specifically regarding the history of the relation of logic to philosophy.

Rāzī provides a more elaborate assessment of form-matter analysis in his philosophical discussion, which is taken up in Chapter 5 of Part II. The chapter is a close textual analysis of parts of his ontological discussion of universals and will attempt to show how closely Rāzī read Avicenna's texts. The chapters in Part I focus on philosophical problems rather than tracing textual sources, though the analysis will show, in a more indirect manner, that Rāzī knew, and directly addresses, Avicenna's positions and works, particularly those in logic. Part I seeks to establish that Rāzī had a firm grasp of the central philosophical problems raised especially by Avicenna's theory of knowledge in *Demonstration*. Chapter 6 will examine Rāzī's elaboration of a systematic

epistemology in his philosophical discussion, which is rooted in the epistemological and logical programme. I will focus specifically on Rāzī's theory of perception and his philosophical analysis of positions in optics.

Here, an important point can be made regarding my method and approach to the sources. The above discussion may suggest that my analysis moves from the views of Aristotle directly to Avicenna and Rāzī. This would ignore the rich and long philosophical tradition that intervenes between Aristotle and Avicenna, particularly the works of the late-antique Greek commentators of Aristotle. This is especially problematic given how recent studies have shown how important that history is to understanding Avicenna.⁵ My analysis will attempt to point out important background questions involved in both Avicenna's and Rāzī's discussions. However, in general, I will not engage the deeper history of those problems.

Two considerations, I believe, justify my approach. First, our discussion will necessarily go into the details of Rāzī's interpretations of the Avicennan and Aristotelian positions, but, with few exceptions, he will be operating primarily as a critic and not as a commentator. As such, my analysis will suggest that Rāzī provides an accurate or plausible interpretation of Avicenna's position on most of the major problems. This, I argue, can be done because Rāzī engages so closely with Avicenna's text. Indeed, showing that Rāzī does so is a primary aim of this study, as noted above. However, Rāzī's alternative view is not a species of Aristotelianism and so the commentarial background will not bear directly on my interpretation of Rāzī.

⁵ See, in this regard, the seminal work of Robert Wisnovsky, *Avicenna's Metaphysics in Context* (Ithaca, N.Y.: Cornell University Press, 2003).

However, Rāzī's views do certainly have roots in the intellectual traditions of Islam. Here, I examine elements of the *kalām* and scientific tradition that explain some aspects of how Rāzī might have developed such a unique philosophical approach. Admittedly, my analysis of the historical background is partial and preliminary. My reason for this is that Rāzī's philosophical views are sufficiently complex and detailed that a focused analysis of his views is justified, particularly as they are expounded in the seminal works of the *Mabāḥith* and the *Mulakhkhaṣ*. I hope that my analysis of Rāzī's philosophical approach will satisfy the reader in this regard.

It should be noted here that I will postpone my analysis of scholarship on Rāzī's philosophical views to Chapter 4. Here, it can simply be noted that previous views of Rāzī consider him primarily as a theologian or as a philosopher in the Aristotelian line, sometimes with strong elements of Platonism. Moreover, it has been argued that in the *Mabāḥith* and the *Mulakhkhaṣ* Rāzī is influenced to a great extent by the *falāsifa* who follow, or come after, Avicenna. My analysis in Chapter 4 will address these views and suggest an interpretation of why Rāzī has come to be viewed in such terms. I argue that Rāzī's views are in some sense an extension of previous developments in *kalām*, but also represent a significant theoretical leap, which largely derives from his deep engagement with Avicenna and the Aristotelian theory of demonstrative science. I believe here that my analysis will leave a historical gap that will require scholarly investigation.

This brings us to our final point, which concerns the precise species of Aristotelianism and demonstrative science that is at issue in our analysis. I have suggested that though aspects of Rāzī's critique apply to Avicenna's systematization of Aristotle – particularly in matters relating to definition, conception acquisition, and his

analysis of the Porphyrian predicables – his overarching project strikes at the root of Aristotle’s theory of demonstration. There is, of course, much debate about what that precisely is. One particular issue that is relevant to our discussion concerns the nature of immediate premises afforded by real definitions. Rāzī’s argument presumes the (standard) interpretation that the immediate premises in demonstrations explaining natural phenomena are grounded in real definitions. On this view, the method and role of real definitions is central to the theory of demonstrative science.⁶ My analysis however

⁶ The standard view of the role of real definitions within the Aristotelian system is that they are extra-linguistic (that is, they are not simply analytic or nominal definitions) and that real definitions, or at least a certain subset of them which are indemonstrable, supply the basic principles of a science. See for example, Richard Sorabji, “Definitions: Why Necessary and in What Way?” in *Aristotle on Science: The Posterior Analytics*, ed. E. Berti (Padua: Editrice Antenore, 1981), 208-244; Bas C. van Fraassen, “A Re-examination of Aristotle’s Philosophy of Science,” *Dialogue* 1 (1980), 20-45; Marguerite Deslauriers, in *Aristotle on Definition* (Leiden: Brill, 2007). Deslauriers argues that distinguishing between what she labels “immediate definitions”, which are extra-linguistic and indemonstrable, and other kinds of definitions (e.g., nominal definitions and definitions displayable in demonstrations) is crucial to understanding Aristotle’s general theory of demonstrative knowledge. An immediate definition, which takes as its object a simple item that has a cause “not other than itself”, plays the central role in Aristotle’s theory. Moreover, on this view, the method of division is indispensable to securing immediate, real definitions, since such definitions cannot be acquired through demonstration. I suggest below that Avicenna’s approach to real definitions (sing. *al-hadd al-haqīqī*) parallels Deslauriers’ interpretation in some important details. Rāzī’s problem with real definitions is that they require an epistemic means to identifying ontologically basic or “simple” objects. The *method* of division and definition in his view does not ensure simplicity in the required sense. Rather, to him, they are complexes that may or may not have some noumenal unity beyond the grasp of our senses and beyond the tools of logic. Rāzī thus departs from the constituent ontology of Aristotelianism, which assigns specific ontological roles to the universals discovered *via* the method of division, such as the genus and differentia. His project is to rebuild an alternative system of universals that does not presume the Aristotelian ontology.

It is important to note that the relevant interpretation here of Aristotle’s view of real definitions presumes a specific *method*, one that cannot be supplemented by or reduced to demonstrations (see van Fraassen, “A Re-examination,” 34-38). David Charles makes a sustained case *for* the role of real definitions in philosophical discourse in *Aristotle on Meaning and Essence* (Oxford: Clarendon Press, 2000). Charles argues that what distinguishes Aristotle from Platonists and modern essentialists (who are in fact conventionalists of a kind) is that the method of definition and demonstration is meant to afford a level of intelligibility not given in our ordinary pre-scientific conceptions, which is consistent with the view above. However, Charles does not – on strong textual and philosophical grounds – fundamentally distinguish between definitions that are immediate and definitions that are displayable or proven in demonstrations. As such, Charles does not need to defend the Aristotelian method of division and its application to sensible phenomena.

assesses Rāzī's positions primarily within the immediate interpretive context of Avicenna's works.⁷

Broadly put, this interpretation of Aristotle's theory of demonstrative science has been the standard view in the late antique and medieval periods, as well as in modern scholarship. More recent interpretations, however, have attempted to provide alternative readings of Aristotle's demonstrative principles, including the view that the empirical principles of demonstration are relative or relational in a certain sense.⁸ No alternative accounts have found currency. In my background discussion I will examine the standard interpretation in detail. Here, I briefly examine an example that will relate the standard view to recent views of Aristotelian demonstrative science advanced in Aristotelian studies. The discussion, here, will presume some familiarity with the material. However, my analysis in the background discussion will not presume any familiarity with interpretations of Aristotle. In the background, throughout my analysis of the Aristotelian view, I will draw primarily on works that parallel or come close to the standard view.

The work of Michael Ferejohn provides an example of a contemporary interpretation that both parallels, and contrasts with, the standard view.⁹ Ferejohn, for example, expands the role of "type 4" *per se* predications mentioned at *Post. An.* 73b10. Ferejohn includes in this category predications that apply "for the most part" (ἐπὶ τὸ

⁷ As indicated, a primary concern for me is to establish how closely Rāzī read Avicenna. This is my aim in Chapter 6.

⁸ For a summary of views and an analysis of problems particularly with the relational view, see Michael Ferejohn, "Empiricism and Aristotelian Science," in *A Companion to Aristotle*, ed. G. Anagnostopoulos (Chichester, UK: Wiley-Blackwell, 2009), 51-65. Recent works that are closer to the standard view include: Michael Ferejohn, *The Origins of Aristotelian Science* (New Haven: Yale University Press, 1991); Owen Goldin, *Explaining an Eclipse: Aristotle's Posterior Analytics 2.1-10* (Ann Arbor: University of Michigan Press, 1996).

⁹ My reference to Aristotelian scholarship is somewhat selective. That is, rather than providing a thorough documentation of Aristotelian scholarship on a particular problem, I select those that pertain to specific interpretations or philosophical problems that arise in the works of Avicenna and Rāzī.

πολλύ) as well as *per se* “incidental” predication (καθ’ αὐτὰ ἴδια).¹⁰ Ferejohn’s account diverges from the standard view in two fundamental ways. First, on the standard account, *per se* incidentals fall under the second category of *per se* predications that Aristotle defines at *Post. An.* 73a36-37. This latter view, that *per se* incidentals correspond to the type-2 category of *per se* predication, is one that is held by Avicenna in *Kitāb al-Burhān* (*The Book of Demonstration*), as discussed in the following section. This leads to a number of fundamental differences in the two approaches. Ferejohn, for example, includes the differentia in type-2 predications, which, on the standard view, apply only in type-1 *per se* predication. The significance of such distinctions will become more apparent in our analysis of Avicenna’s interpretations in the next section. As we will see, Rāzī’s critique focuses on the first two categories of *per se* predications, i.e., types 1 and 2.¹¹

¹⁰ Ferejohn does so in order to rescue demonstrations from the charge of triviality.

¹¹ See the commentary on the four kinds of predication by Jonathan Barnes in *Aristotle’s Posterior Analytics*, 2nd ed. (Oxford: Clarendon Press, 1994), 112-117.

Part I: Logic & Methodology

Background: Aristotelian Science and Demonstrative Knowledge

Rāzī's epistemological and logical programme, the topic of the following four chapters of Part I, addresses foundational problems confronting the Aristotelian theory of scientific knowledge and demonstrative proof. Rāzī scrutinizes various principles and distinctions that are central to the Aristotelian theory of predication and demonstration. His development of an alternative theory of knowledge and approach to philosophical discourse is conducted in light of his clarifications of the central problems that confront the Aristotelian theory.¹² In this section, I examine core aspects of that theory, particularly as expounded by Avicenna, who was a lens through which Rāzī accessed and

¹² Rāzī's attempt to distance himself from the methods and tools of Aristotelian science – particularly in the *Mabāḥith* and *Mulakhkhaṣ* – is a point that I seek to underscore in the following analysis. In Chapter 4, I argue that Rāzī's restructuring of philosophical discourse in these two works not only departs from the Aristotelian theory of science but represents a significant leap from previous *kalām* approaches. Indeed, Rāzī objects, not infrequently, to *kalām* positions on both methodological and substantive grounds, as discussed below. However, in his two major philosophical works, he places an unequal emphasis on clarifying and correcting problems in the Aristotelian theory. My working hypothesis, as clarified in Chapter 4, is that Rāzī's aim in the *Mabāḥith* and *Mulakhkhaṣ* is quite ambitious. That is, the two works seek to set out a new approach to assessing problems in ontology and natural philosophy. Rāzī proceeds as though the only philosophical system worthy of his attention is that of the *falāsifa*. This can be explained by reference to the scope of the *Mabāḥith* and the *Mulakhkhaṣ*. That is, the two works examine a wide range of problems that surpasses previous *kalām* treatments. For example, Book II of both works assesses problems that are taken up in Aristotle's *Physics*, *De Caelo*, *Generation and Corruption*, and *De Anima*, as well as problems in astronomy and optics. That is, Book II spans an extensive range of scientific topics that the Aristotelians treat in natural philosophy. Importantly, unlike post-classical works of *kalām*, *kalām* works preceding Rāzī did not investigate such problems. The scope of inquiry in *kalām* seems to have been much more limited. This, I believe, is one important explanation for Rāzī's focus on the Aristotelian theory of science. That is, unlike *kalām*, Aristotelian science presents itself as *the* universal and systematic theory of scientific human knowledge.

interpreted the philosophical tradition. With regard to our analysis of Rāzī's epistemological concerns in Chapter 1, two central notions in Avicenna's system are the focus of Rāzī's attention: the method of scientific or "real" definitions (*al-ḥadd al-ḥaqīqī*) and the nature of conceptions (sing.: *taṣawwur*) or concept acquisition. Rāzī argues against the possibility of obtaining the real definitions of things, and he takes a related position that there are no "acquired" conceptions of things (*al-taṣawwurāt ghayr muktasaba*). These two positions are aimed at opposing the foundational principles of Avicenna's theory of definition as set out in *Kitāb al-Burhān* (*The Book of Demonstration*) of *al-Shifā'*. Rāzī's logical analysis discussed in Chapter 2 and Chapter 3 focuses on the Aristotelian theory of essential or *per se* predication. In particular, he assesses the nature of the relation that holds between constitutive parts of an essence and its non-constitutive or external properties. Rāzī's logical analysis centers on how necessity attaches to the parts and properties of essences in *per se* predication. I begin by examining Avicenna's discussion of scientific definitions and concept acquisition.

In I.1 of *Demonstration*, Avicenna discusses knowledge and knowledge acquisition, focusing particularly on the nature and division of "acquired" knowledge (*al-ʿilm al-muktasab*).¹³ Acquired knowledge, in his view, divides first into assent/judgment

¹³ As noted by Jon McGinnis and Riccardo Strobino, it is surprising how little attention has been paid to Avicenna's interpretation of Aristotle's theory in *Demonstration*. No comprehensive study of the work has been undertaken. Some important recent studies on specific topics discussed in *Demonstration* include: Jon McGinnis, "Logic and Science: The Role of Genus and Difference in Avicenna's Logic, Science, and Natural Philosophy," *Documenti e studi sulla tradizione filosofica medievale*, 18 (2007), 165-186; Id., "Scientific Methodologies in Medieval Islam," *Journal of the History of Philosophy*, 41 (2003), 307-327; Id., "Avicenna's Naturalized Epistemology and Scientific Method," in *Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and Their Interactions*, ed. S. Rahman, T. Street, and H. Tahiri (Dordrecht: Springer, 2008), 129-152; Id., *Avicenna* (Oxford: Oxford University Press, 2010), 37-52; Riccardo Strobino, "Avicenna on the Indemonstrability of Definition," *Documenti e studi sulla tradizione filosofica medievale*, 21 (2010), 113-163; M. E. Marmura, "The Fortuna of the *Posterior Analytics* in the Arabic Middle Ages," in *Knowledge and the Sciences in Medieval Philosophy: Proceedings of the Eighth International Congress of Medieval Philosophy*, ed. M. Asztalso, J. Murdoch, and I. Miiniluoto, vol. 1

(*taṣḍīq*) and conception (*taṣawwur*); the former, he states, is acquired by a certain kind of syllogism (*bi-qiyāsⁱⁿ mā*) and the latter by a certain kind of definition (*bi-ḥaddⁱⁿ mā*).¹⁴ He then divides and ranks judgments and conceptions according to an epistemic hierarchy. Judgments are categorized according to the level (*marātib*) of certainty that attaches to their propositional content and conceptions based on how closely they correspond to an object, i.e., the definiendum.¹⁵ To each level of judgment and conception, moreover, a specific kind of syllogism and definition is assigned. Avicenna states that it is by means of the assigned type of syllogism or definition that a specific level of knowledge is acquired with regard to a judgment or concept.

The highest kind of knowledge of judgments is that which is engendered with certainty (*yaqīn*). Avicenna's definition of certainty here is particularly significant and distinctive. Judgments based on certainty, he states, are constituted by (i) the basic belief

(Helsinki, 1990), 89-98. Some other sources, relevant to our discussion, that touch upon doctrines in *Demonstration* include: Peter Adamson, "On Knowledge of Particulars," *Proceedings of the Aristotelian Society*, 105 (2004), 257-278; M. E. Marmura, "Ghazālī and Demonstrative Science," *Journal of the History of Philosophy*, 3 (1965), 183-204; Marwan Rashed, "Ibn ʿAdī et Avicenne: sur les types d'existants", in *Aristote e i suoi esegeti neoplatonici. Logica e ontologia nelle interpretazioni greche e arabe* (Atti del convegno internazionale, Roma, 19-20 ottobre 2001), ed. V. Celluprica & C. D'Ancona (Napoli: Bibliopolis, 2004), 107-171 (see especially pp. 151-154, where the relation between mathematics/geometry and science is briefly discussed). The philosophical problems that will preoccupy this dissertation, central aspects of which are discussed in this section – namely, Avicenna's theory of demonstrative knowledge, definitions and *per se* predication – also require study. My analysis focuses on aspects of Avicenna's theory that concern Rāzī's approach to philosophical and scientific knowledge. For important background developments to Avicenna's theory, specifically in al-Fārābī, see Deborah Black, "Knowledge (ʿIlm) and Certitude (Yaqīn) in al-Fārābī's Epistemology," *Arabic Sciences and Philosophy*, 16 (2006), 11-45.

¹⁴ Avicenna, *al-Shifāʾ*, *Kitāb al-Burhān*, ed. Abū al-ʿAlā ʿAfīfī (Cairo: al-Maṭbaʿa al-Amīriyya, 1956), 51 (hereon referred to as *Demonstration*). The indefiniteness of *taṣawwur* and *taṣḍīq* is meant to indicate that there are corresponding kinds of syllogisms and definitions, as shown below. It should be noted that Avicenna's theory of acquired knowledge is very different from the notion of acquired knowledge in *kalām*. Both however use the same term *al-ʿilm al-muktasab*. Avicenna's use of the term applies specifically to his interpretation of Aristotle's theory of scientific knowledge. In *kalām*, *al-ʿilm al-muktasab* is the kind of knowledge that results primarily from *kalām* forms of deductions (*naẓar*). See, for example, Marie Bernand, *Le problème de la connaissance d'après le Muḡnī du Cadī ʿAbd al-Ġabbār* (Algiers: 1982), 226-261. Dhanani, *The Physical Theory of Kalām: Atoms, Space and Void in Basrian Muʿtazilī Cosmology* (Leiden: E.J. Brill, 1994), 22-23.

¹⁵ By "propositional content" I simply mean the object of belief or content corresponding to a judgment, which he terms *muṣaddaq bihi*, as discussed below. Note, however, that *muṣaddaq bihi* is distinguished from conceptions, which include non-propositional conceptions of judgments.

in a proposition (*muṣaddaq bihi*), *X*, to which (ii) a “second belief” (*i‘tiqād thānī*) is attached. He defines the second belief as the belief that *X* cannot be otherwise than it is, if it is not possible for the (second) belief to be removed from the first.¹⁶ His definition of the highest kind of judgments invokes, of course, Aristotle’s words regarding scientific knowledge in the *Posterior Analytics*.¹⁷ Aristotle calls this kind of knowledge “knowledge *simpliciter*” (*epistēmē haplōs*), and defines it in 1.2 of *Posterior Analytics* as knowledge (a) of *why* things are as they are and (b) that they cannot be otherwise than they are.¹⁸ Avicenna’s definition parallels Aristotle’s, specifically in stipulating the necessity condition, (b), that *X* cannot be otherwise than it is.¹⁹ Avicenna seems to omit (b), or the “reason why”, which is the requirement that scientific knowledge involves the (causal) explanation of *X*. However, Avicenna subsequently clarifies the nature of the necessity in judgments by reference to the nature and structure of causal explanations, in I.4 (which corresponds generally to A.2 of the *Posterior Analytics*) and I.8 of

¹⁶ See n. 19.

¹⁷ I will use “science” or “scientific knowledge” to refer to the kind of knowledge defined by Aristotle in the *Posterior Analytics*. Cf. Myles Burnyeat, “Aristotle on Understanding Knowledge,” in *Aristotle on Science: The Posterior Analytics*, ed. E. Berti (Padua: Editrice Antenore, 1981), 97-139.

¹⁸ Jonathan Barnes, *Aristotle, Posterior Analytics*, 2. Unless specific translations are cited, I will generally refer to the translations of Aristotle in *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. J. Barnes, 2 vols. (Princeton: Princeton University Press, 1984). I will primarily cite Bekker numbers for references from the latter.

¹⁹ Even more, the if-clause in Avicenna’s definition suggests a particular interpretation of the necessity condition in Aristotle’s definition of science. Barnes has noted the ambiguity between “*a* has scientific knowledge of *X* if *X* cannot be otherwise” and “*a* has scientific knowledge of *X* if *a* knows that *X* cannot be otherwise”. Like Barnes, Avicenna seems to opt for the latter, since his if-clause seems to attach the necessity of the belief to the fact that “*X* cannot be otherwise”. However, Avicenna’s phrasing in the if-clause is ambiguous since the “not possible” seems to apply to the necessary belief’s not ceasing or being removed, i.e., that it is not possible for the belief in (the necessity of) *X* to cease. Thus, it is unclear whether he means *a* knows that *X* cannot be otherwise or whether *a*’s knowledge is the kind of knowledge that cannot possibly be removed. I think Avicenna means the latter because he does not treat the reason *why* condition, (a), independently of the necessity condition, (b), as does Barnes. Indeed, the subsequent discussion suggests that, to Avicenna’s mind, the necessity condition ought to be explained by the nature of (causal) explanations. What Avicenna precisely means here is not central to the subsequent discussion but his theory requires further study. Avicenna’s phrasing describing the second belief is: “*anna l-muṣaddaq bihi lā yumkinu an lā yakūna ‘alā mā huwa ‘alayhi idhā kāna lā yumkinu zawāl hādha l-i‘tiqād fīhi*”. See Barnes’ comments in *Posterior Analytics*, 89-91.

*Demonstration.*²⁰ In I.8, Avicenna begins by discussing predication (*ḥaml*) and states, “The predicate and subject themselves (*dhāt al-maḥmūl wa-l-mawḍūʿ*) do not possess, without that cause [i.e., the explanatory cause; *ʿilla*], a relation [of predication] with necessity (*bi-l-wujūb*), but rather [only] with contingency (*bi-l-imkān*).”²¹ That is, predications hold necessarily of the subject and predicate only if the proper explanatory relations are taken into account. Avicenna provides examples of inferences in demonstrations that might mistakenly be taken as necessary but yield only contingent knowledge. Taking “human” and the properties “rational” and “laughing” to illustrate his point, he provides the following spurious demonstration:

All humans are risible

All risible [things] are rational

∴ All humans are rational²²

This deduction does not yield necessary and certain knowledge because we have not “safeguarded” (*murāʿa*) the order of causal relations that holds between the subjects and

²⁰ In I.4, which is entitled “On enumerating the principles of syllogisms in a general manner”, he attempts to separate “superficial” necessity (*ḍarūra ṣāhiriyya*), afforded by perception and experience, from “deep” necessity (*ḍarūra bāṭiniyya*) given by one of the higher faculties like the intellect or estimation. He then moves to distinguish estimative necessity (*ḍarūra wahmiyya*), which is misleading, from real necessity (*ḍarūra ḥaqīqiyya*). Here he is especially concerned with sensible things, and states that “the principles of demonstrations which are of the kind of these [principles] involving perceptible objects (*min jins al-mudrakāt*) are necessarily from among those [things] that are perceived and believed with real, not estimative, necessity.” (p. 65) Then, in I.5, Avicenna discusses the scientific questions, including the question *why* (*ṭalab al-lima; to dioti*) but does not discuss necessity. After considering specific problems regarding knowledge of non-existents and pre-existent knowledge in I.6, Avicenna in I.7 discusses the differences between demonstrations showing *that* it is the case (*burhān al-inn*; in medieval Latin philosophy *quia*) and those showing *why* it is the case (*burhān al-lima*; in medieval Latin philosophy, *propter quid*). Finally, in I.8, entitled “That certain knowledge of everything that has a causal reason [is known certainly] through that causal reason, and safeguarding the relations of such terms in demonstration”, he returns to the question of necessity and more precisely ties the discussions of causal explanation with necessary knowledge. He concludes: “It is clear that a thing or state/event (*ḥāl*), if it has a causal reason (*sabab*), it is not known with certainty except through its causal reason.” I.8 notably has no corresponding section in the *Posterior Analytics*.

²¹ Avicenna, *Demonstration*, 85.

²² *Ibid.*, 85-86.

predicates, specifically in this case because risibility or the power (*quwwa*) to laugh is causally explained (*ma‘lūla*) by the power of rationality. Avicenna states, “Insofar as one does not know that the *necessity* of the power of rationality [applies] first to humans and that the power of laughter *necessarily* follows (*wujūb ittibā‘*) from the power of rationality, it is *not necessary* that one is [scientifically] certain that it is not possible that there exists a person who does not possess the power of laughter – except [if] that [belief obtains] by sense perception (*fī al-ḥiss*), but sense perception does not prevent [belief in] the contrary (*al-khilāf*) of that which has not been perceived by the senses or that which is gained by experience (*bi-l-tajriba*).”²³ More will be said about the nature of casual explanations and necessary predications as our analysis proceeds. I return, now, to Avicenna’s theory of concept acquisition and definition. It may be noted here that Rāzī will oppose this Aristotelian view of scientific knowledge: that knowledge of necessary predicative relations (particularly as applied to sensible reality) can be established by means of real definitions or causal explanations, i.e., demonstrations.

It was noted that Avicenna divides conceptions according to a hierarchy that parallels his division of judgments according to a hierarchy of certainty.²⁴ With regard to judgments, below the highest level of certainty, which corresponds to necessary scientific judgments, we find quasi-certain judgments (*shabīh bi-l-yaqīn*) which do not possess the

²³ The variant *yu’khadh* (apprehended) provided in the apparatus of the cited edition for *yūjad* (exists) seems to make more sense here. See *Demonstration*, 86.

²⁴ I will generally use “concept” to refer specifically to that which is signified by a singular term, like, “man” (i.e., our pre-scientific concept). I use “conception” to refer to a concept that is not simply picked out by a singular term but is acquired by a real definition. That is, the relevant epistemological principles are required for conceptions, as they lead to the correct acquisition of such a concept. Concept is the more general term, and so I will use it as the default when I need not underscore or clarify that we are discussing knowledge of essences. “Concept acquisition” is the means to acquiring conceptions, which includes scientific definitions as well as the method of division through which one acquires definitions, as discussed below. There is a second notion of concept acquisition that is touched upon in the context of Rāzī’s view in the subsequent chapters. That is, even our pre-scientific concepts are acquired in a certain way. Aspects of this second view of concept acquisition will be discussed in Chapter 6.

“second belief” that X holds necessarily, though the possibility of *actually* denying X does not obtain in this case. Below this, there are persuasive or probable judgments (*iqnā^cī ḡannī*), which also contain a second belief, though here it is the belief that the denial of X is possible. To these judgments, Avicenna provides the corresponding syllogisms by means of which the judgments are acquired: demonstration (*al-burhān*, which engender certainty), dialectic or sophistical syllogism (*al-qiyās al-jadalī* or *al-sūfiṣṭā^oī*, which engender quasi-certainty), and rhetorical syllogism (*al-qiyās al-khiṭābī*, which engender probable belief).

In a similar manner, “acquired conceptions” (*al-taṣawwur al-muktasab*) have levels (*marātib*) that correspond to kinds of definition. As mentioned, his division of conceptions is determined by the nature of their correspondence to an item (*al-shay^o*), call it x . His primary division distinguishes between two kinds of properties through which one obtains a conception of x , i.e. “accidental properties” (*al-ma^cānī ^caraḍiyya*) and “essential properties” (*al-ma^cānī al-dhātiyya*).²⁵ The two then are subdivided according to the nature of their extension; that is, accidental properties may be (2a) specific (*takhuṣṣ*) to x or common to (2b) x and to things other than x (*ya^cummuhu wa-ghayruhu*). The same applies to essential properties. This then gives us conceptions divided according to the properties of x that are (1a) specific and essential, (1b) common and essential, (2a) specific and accidental, and (2b) common and accidental. He then subdivides (1a), comprising the specific essential properties of x , according to their “completeness” (*kamāl*) so that, on the one hand, it comprises (1a^o) the complete essence of x ’s existence such that “the [conception] is an *intelligible form* corresponding to its

²⁵ What Avicenna means by “accidental properties” in this context will be clarified below. The term acquires a precise meaning in subsequent chapters of *Demonstration*.

[i.e., x 's] existent form" ("ḥattā yakūna ṣūrat^{an} ma^cqūlat^{an} muwāziyat^{an} li-ṣūratihī al-mawjūda").²⁶ This is the case, he adds, if the conception does not exclude any of its essential properties, i.e., it is the complete conception of its essence. On the other hand, the conception may only comprise (1a^o) a part (*shaṭr*) of the essence of x so that it is not a complete conception of all its essential properties.

Avicenna assigns a type of definition for the acquisition of each kind of conception: (Ia) complete definition (*ḥadd tāmm*) for (1a); (Ib) incomplete definition (*ḥadd nāqis*) for (1b), (IIa) complete description (*rasm tāmm*) for (2a), and (IIb) incomplete description for (2b). The division of definitions is dictated by how the definition distinguishes (*tamyīz*) the definiendum from other things, and specifically whether it distinguishes x with reference to a part (*al-ba^cd*) or the whole (*al-kull*) of what is other than x . That is, the definition or description may have an extension of only x or a wider extension including things other than x .²⁷ Avicenna's analysis of definitions here is

²⁶ As discussed below, Rāzī argues against the notion of mental forms in his philosophical discussions and indicates his opposition to the view in logic.

²⁷ Avicenna's aim here seems to be to distinguish the definition, say, of "human" as "rational animal", which is complete (Ia), from the definition "two-legged animal", which is incomplete (Ib). In the case of descriptions, the examples would be something like "risible animal" (IIa) and "medium-statured animal" (IIb) for "human". (Ib) is incomplete in this sense, since the differentia "two-legged" applies to things other than man, say, chickens and apes, so that it does not differentiate man from all other animals (though it still identifies some of its essential or constitutive properties). "Rational" in (Ia) does completely differentiate man. However there is an ambiguity here with regard to his use of "whole" and "part". His initial discussion of definitions occurs in I.8 of the *Introduction (al-Madkhal)*, where he refers to *Demonstration* for the full discussion. The example he provides of a complete description of "human" is: "wide-nailed, medium-statured, having visible skin (i.e., not covered by hair or fur; i.e. *bādi' al-bishra*), risible animal". He states that one could omit "animal" and it would still be a description. Though Avicenna does not say, this seems to be considered an incomplete description. The difference between completeness and incompleteness in such partial definitions and descriptions is that the completeness concerns the parts internal to the definiendum (or necessarily holding of it) rather than the extension of the differentia or proprium. In *Demonstration* his phrasing is sufficiently ambiguous to allow for both readings. He simply states for example, "*tamyīz 'an ba^cd dūn ba^cd*" or "*tamyīzuhu 'an al-kull*". But Avicenna's subdivision of (Ia), discussed in the following paragraph, strongly suggests the distinction concerns the *extension* of the differentia or proprium because the subdivision concerns the completeness of the (constitutive) parts of x , indicating that the primary distinction between (Ia) and (Ib) is not of the parts of x but the extension of its differentia. At any rate, this problem will ultimately prove inconsequential since what is really at issue in the rest of *Demonstration* is the relation between the internal constituent essential properties of x versus its

introductory and the details of his approach, particularly in later chapters of *Demonstration*, will be elucidated further in the subsequent analysis of Part I. But I note here a number of central points that are underscored regarding definitions, focusing specifically on (Ia).

Avicenna states that if the definition simply distinguishes x by its essential properties (*al-dhātiyyāt*) from all other things (*‘an al-kull*), the literal-minded logicians (*al-zāhiriyyūn*) consider it a complete definition. To the astute (*al-muḥaṣṣilūn*), however, a complete definition obtains only if the definition “encompasses all the essential properties such that none are left out” (*ishtamala ‘alā jamī‘ al-dhātiyyāt ishtimāl^{an} lā yashidhdhu minhā shay’*). If any essential property is left out, the definition is not a complete definition because, as he states, the object of defining (*gharaḍ al-taḥdīd*) is not simply to distinguish (*tamyīz*) a thing by essential properties. Here, he provides the example of rendering the definition of “human” as “a corporeal, rational, mortal [thing]”. The definition distinguishes man from all other things but omits intermediary properties, such as “animal”, which is subordinate to “corporeal” but superordinate to “rational”.²⁸ The definition as such is incomplete and is not a “real definition” (*al-ḥadd al-ḥaqīqī*), since it does not account for all the essential properties of the definiendum. Here, Avicenna cites Aristotle’s description of definition in the *Topics* that “the definition is a phrase signifying the essence” (*al-ḥadd qawl dāll ‘alā al-māhiyya*) and adds, “by essence he means the perfection [or completeness] of the inner reality of a thing (*kamāl ḥaqīqat*

external or proper properties, as clarified below. Avicenna here provides an introductory account as indicated by the fact that he does not even define what he means by “accidental properties”, which is a crucial concept later on in the work. As such, the account seems to be intended to remain somewhat imprecise.

²⁸ The relations holding between various classes of properties, specifically with regard to super-ordination and subordination, will be discussed shortly.

al-shayʿ) by which it is what it is and by which it is itself completely produced (*yatimmu ḥuṣūlu dhātihi*).”²⁹

Before turning to Chapter 1, a few points need to be noted regarding terminology. I have been using “definitions” quite loosely so that, at times, it includes descriptions and at others it refers to definitions *stricto sensu*, specifically (Ia) and (Ib). Avicenna’s general term for definitions, which includes not just definitions and descriptions, but nominal definitions and analogies as well, is *qawl shāriḥ* (“a clarifying phrase”) or *qawl mufaṣṣal* (“an expanded phrase”).³⁰ His division of definitions in *Demonstration* does not concern this broader category. Rather, his division concerns scientific definitions that are employed in demonstration and acquired by a certain method, as indicated previously. I will refer to the broad category of definitions and descriptions that this includes as “informative definitions”. More will be said in subsequent chapters about the nature of informative definitions, particularly as they contrast with other kinds of definitions such as nominal definitions. Avicenna uses the more specific term *ḥadd ḥaqīqī* or “real definition” to refer to the subtype of (Ia) that accounts for all the essential properties of a thing (which can he refers to as Ia^a). He seems to disregard its counterpart that simply distinguishes the essence by some of its essential properties. As we will see, Rāzī will also use the term *ḥadd ḥaqīqī* to refer to that which includes all the constituents or

²⁹ Avicenna, *Demonstration*, 52. See Aristotle, *Manṭiq Aristū*, ed. °A.R. Badawī (Cairo: Maṭbaʿat Dār al-Kutub al-Miṣriyya, 1952), 484. Cf. *Topics*, 102a1.

³⁰ The latter is the term he uses in *Demonstration*, and the former is used for example in the *Najāt* and *Ishārāt*. In *al-Madkhal* of *al-Shifāʿ*, Avicenna notes that there is no term or name that broadly covers all these types of definitions. Presumably, he uses these terms to fill the void. See, Avicenna, *al-Shifāʿ*, *al-Madkhal*, ed. I. Madkūr (Cairo: al-Maṭbaʿa al-Amīriyya, 1952), 18; Ibid., *al-Najāt*, ed. °A.R. al-°Umayra (Beirut: Dār al-Jīl, 1992), I, 109; Fakhr al-Dīn al-Rāzī (& Avicenna), *Sharḥ al-Ishārāt wa-l-Tanbīhāt*, ed. °Alī Rizā Najafzāde, (Tehran: Anjumān-e Āthār va Mafākhir-e Farhangī, 1384 [2005 or 2006]), I, 23. Any references to Avicenna’s *Ishārāt* will be from this edition of his text, which is accompanied by Rāzī’s commentary.

“internal” parts of *x*. In the following, the context will usually clarify my use of the term “definition”. I will use “definition”, as a translation for the term *ḥadd*, which usually includes (Ia) and excludes descriptions. (Ib) will not figure prominently in the discussion. I will often use “real definition” to refer specifically to, and underscore, the technical sense of a complete essential definition (i.e., Ia^e) which Avicenna refers to in *Demonstration* and elsewhere. Rāzī will provide his own “analytic” division of definitions and descriptions, which, in Chapter 2, will be compared with Avicenna’s division.

It is clear that Avicenna views definitions as a means of acquiring conceptions, but how might one acquire a definition? That is, if definitions are supposed to locate the essential properties of things, particularly of sensible things (i.e., rather than, say, simply finding the linguistic meaning of terms), one might expect some rules on how to go about defining a thing.³¹ Here, Avicenna, like Aristotle, prescribes the method (*tarīq*) of division (*al-tarkīb*) as a means to the acquisition (*al-iktisāb*) of definitions.³² The precise nature of Aristotelian division will not be important to the subsequent analysis for reasons discussed below. However, Aristotle inherits the method of division from Plato and a brief look at the modifications that Aristotle applies to Plato’s method will bring to light some important philosophical concerns, particularly regarding the Aristotelian approach to universals and predication. Indeed, a number of epistemic principles assumed

³¹ Avicenna states, “[T]hat by means of which conception is acquired is definition (*alladhī yuktasabū bihi al-ṭaṣawwur huwa al-ḥadd*).” *Al-Najāt*, I, 77. He also calls definitions that which leads to (*mūṣil*) or brings about (*mūqi*) a conception. See *Sharḥ al-Ishārāt*, I, 23. We will return to the question of nominal definitions in Avicenna below.

³² Avicenna, *Demonstration*, 306-311. Like Aristotle, Avicenna distinguishes between the method of division (*al-qisma*), taken generally without certain rules prescribed by Aristotle, and the proper method of definition which takes into account a number of those rules, as clarified shortly below. Avicenna labels the latter *tarkīb*. Aristotle, as we will see, uses the term “division” to apply to both kinds.

in Aristotle's theory will be found, in Chapter 1, to motivate Rāzī's analysis of the *method* of definition.

Plato, just as much as Aristotle, saw that the proper aim of division is not simply to classify objects or to distinguish one item from others, but to reveal the properties that account for the essence of a thing, i.e., what kind of thing the definiendum fundamentally is. Aristotle demanded that division follow systematic rules to ensure that the method yielded non-arbitrary and "natural" divisions. The natural-ness of division to both thinkers was a matter of locating the essential rather than accidental kinds that classify things. However, as we will see, Aristotle's approach will differ radically with regard to the details of how universal kinds are categorized and ordered. Two requirements that Aristotle stipulates are of interest here: (i) that division follows "successive differentiation" and (ii) that the division sets out the *differentiae* simultaneously rather than one at a time.³³ Aristotle's rules for division are informed by his more overarching theory of predication and universals, which sought to treat systematically the relations that hold between the essence, the parts of the essence, and properties that are external to the essence. Aristotle thus distinguishes between various kinds of universals: genus, *differentia*, species, *proprium*, and accident. In the commentarial tradition, these universals came to be known as the five Porphyrian predicables, which were discussed by Porphyry (d. 305? CE) in his highly influential *Isagoge*. The *Isagoge* served as an introduction to Aristotle's works of logic, i.e., the *Organon*. However, the role of Porphyrian predicables in the logic of the commentators differs in important ways from how Aristotle had treated predicables in the original works of the *Organon*, particularly

³³ See D.M. Balme, "Aristotle's Use of Division and *Differentiae*," in *Philosophical Issues in Aristotle's Biology*, ed. A. Gotthelf and J.G. Lennox (Cambridge: Cambridge University Press, 1987), 69-89.

in the *Categories* and the *Topics*. The following discussion of Aristotle's theory of predication will bring to light some of those differences.

Before moving on, however, it should be noted that Aristotle's criticism of Plato's view of division was also related to the problem of the indemonstrability of definitions. Though it is not clear that Plato made any claims to the contrary, Aristotle argues that division is simply a means to *acquiring* definitions not a means to proving them.³⁴ Our discussion will not focus on this question but, as stated above, the notion that definitions are indemonstrable, which Aristotle considers a fundamental principle for scientific knowledge, will play a role in Rāzī's argument against real definitions and demonstrative knowledge.³⁵

Aristotle's amendments to Plato's method of division are guided by his more fundamental differences with the latter on the (ontological) status of universals and their role in predication. Aristotle, as is well known, criticizes Plato's theory of eternal and subsisting forms. However, the relation between Plato's forms and universals (i.e., "that which is predicated of many") as construed by Aristotle is somewhat complicated. Aristotle believes that Platonic forms posit the existence of universals separate from individuals. That is, universals are themselves individual entities or substances and thus exist independently of their individual instances. On Plato's view, then, every meaningful universal term corresponds to a "universal substance". Aristotle, however, argues that

³⁴ Aristotle, like Plato, uses the term "to hunt" or "to run down" (*thēreuein*) to refer to locating or acquiring definitions (*Post. An.*, B,13, 96a21).

³⁵ There seems to be two aspects to Aristotle's criticism. One is that Plato's division does not *establish* definitions of the kind required by Aristotle in demonstration, i.e., necessary and unique as discussed below. Another point, which seems to be implicit, is that division, or any other method for that matter, cannot *prove* definitions. Division does not do so for the same reasons that Aristotle objects to the demonstration of definitions, i.e., any proof for a definition is in some way involved in a *petitio principii*. Avicenna's analysis of division makes this particularly clear; see Strobino, "Avicenna on the Indemonstrability of Definition," 113-163.

universals are not individuals or substances that exist independently of individual sensible objects. Aristotle's dispute with Plato is not over the existence of universals *simpliciter*. In fact, as we will see, Aristotle does not deny the existence of universals but only their existence as "primary substances", i.e., as the ontologically basic entities of the system. In the *Metaphysics*, Aristotle attempts to work out a view that takes the forms of sensible things as the primary substances. His approach there, based on his analysis of form and matter first introduced in the *Physics*, views form as a kind of particular or, as he terms it, a "some this" (*tode ti*), which presumably opposes a (separate) universal.³⁶ In his logical works, Aristotle develops a theory of universals that takes sensible particulars as primary substances.

In logic Aristotle's focus is to elaborate a system of universals that classifies sensible phenomena within his larger theory of predication. Plato's theory fell short on this count as he did not systematically distinguish the various ways in which universals of sensible particulars might be interrelated and interdependent. That is, Plato's forms were mutually independent entities that did not include or classify other universal forms. Sensible particulars were explained simply by the conjunction of independent forms; for example, "rational", "biped", and "animal" refer to independent forms that combine to constitute "man".³⁷ In contrast to Aristotle's universals, as we will see, Platonic forms were not categorized according to kinds that fulfill an explanatory function or possess an

³⁶ Whether forms, specifically substantial forms, are particular or universal is perhaps the most disputed problem in modern scholarship on Aristotle. For a critical assessment of the debate, see Galluzzo's chapter 4 in Gabriele Galluzzo and Mauro Mariani (eds.), *Aristotle's Metaphysics Book Z: The Contemporary Debate* (Pisa: Edizioni della Normale, 2006), 167-211. For one influential interpretation of the universality versus particularity of forms, see Michael V. Wedin, *Aristotle's Theory of Substance: The Categories and Metaphysics Zeta* (Oxford: Oxford University Press, 2002).

³⁷ From the perspective of individuals, a particular man simply participates in the form of "humanity".

ontological status, a point evidenced in his somewhat indiscriminate use of terms such as form (*eidos*), genus (*genos*), and part (*meros*).

Aristotle carefully distinguishes between the kinds of universals that explain sensible objects. He begins by analyzing the patterns of our basic predicative statements, which he believes will reveal the ontological status and structure of the items occupying the subject and predicate places of sentences. Aristotle ultimately finds that universal predicables fall into distinct categories, signified, for example, by terms such as “species” (*eidos*), “genus”, and “differentia”, which become technical terms in his logical vocabulary.³⁸ Aristotle’s system seeks to distinguish those universals corresponding to the essential characteristics of a sensible item from those that simply picked out their accidental properties. Moreover, by analyzing objects into more general and specific classes, Aristotle seeks to better understand the internal structure of sensible things. Thus, in contrast to Plato, “animal”, “biped”, and “rational” constitute “man”, not simply by combination but by identifying the more general and specific “parts” (*meros*) of man (i.e., respectively the genus “animal” and differentia “rational”). In the following, I discuss some aspects of Aristotle’s development of a theory of predication before returning to his amendments to the method of division. As explained below, a number of foundational distinctions that Aristotle makes in logic to develop a systematic theory will carry

³⁸ Note that *eidos* in the *Metaphysics* corresponds to “form” as opposed to matter, whereas, in his logical works, *eidos* signifies the “species” as opposed to “genus” and “differentia”. Moreover, the species of the *Categories*, such as “man” and “horse”, which are simple substances, are viewed as composites of form and matter in the *Metaphysics*. The relation between the two approaches – specifically, whether they are consistent in some way or represent inconsistent phases in the development of Aristotle’s thought – is a matter of debate. On the “logical” nature of works of the *Organon*, see Miles Burnyeat, *A Map of Metaphysics Zeta* (Pittsburgh: Mathesis Publication, 2001), 87-125. See also my discussion in the “Postscript” below.

important consequences for the subsequent analysis, specifically with regard to Rāzī's critique of Aristotelian essentialism.

In the *Categories*, Aristotle begins with a basic classification of predicative relations, often referred to as the “fourfold division”. The linguistic analysis however carries important ontological consequences. Aristotle divides *entities* into:

(S1) primary substances (e.g., Socrates);

(S2) secondary substances (i.e., *kinds* of primary substances, e.g., “man”);

(P1) something *in* a primary substance (e.g., an instance of whiteness in Socrates);

(P2) *kinds* of things that are *in* a primary substance (e.g., “whiteness”).³⁹

Items that belong to S1 and S2 are *substances*, which are, in one way or other, the ontologically basic entities of the system, as opposed to items in P1 and P2, which we will call *properties*. Items in S1 and P1 are particulars, whereas those in S2 and P2 are universals. Primary substances occupy the prime place in this division, as they are those concrete individuals on which all items in the other categories ontologically depend. Secondary substances are ontologically dependent on primary substances since they are simply the universals that classify sensible particulars. Aristotle, as mentioned, rejects the view that universals exist separately from individuals. Here, the ontological primacy of

³⁹ This presumes the traditional interpretation that items in P1 (i.e., things that are “*in* a subject but are *not said of* any subject”) are non-substantial *particulars*, that is, non-repeatable instances of a property. But, as explained below, the analysis will not depend on this particular reading of non-substantial particulars. What is central to the discussion however is the more general assumption in Aristotle's view that the dependency relation between substances and properties is asymmetrical, as will be discussed shortly. For an overview of the debate, see Gareth B. Matthews, “Aristotelian Categories,” in *A Companion to Aristotle*, 144-154. See also Daniel T. Devereux, “Inherence and Primary Substance in Aristotle's *Categories*,” *Ancient Philosophy* 12 (1992), 113-31. Devereux's account is developmental but comes closer to the views of Aristotelians like Avicenna than other contemporary interpreters. Devereux, for example, notes that a particular accident like a color applies to individual humans insofar as it applies *primarily* to “body”. But in contrast to the view of M. Frede, a particular accident in a particular individual cannot exist apart from the individual just as much as it cannot exist apart from “body”. See M. Frede, “Individuals in Aristotle,” in *Essays in Ancient Philosophy* (Minneapolis: University of Minnesota Press, 1987), 49-71.

primary substances over secondary substances, or more generally of particulars over universals, is explained by the linguistic fact that “things that are individual and numerically one are, without exception, not *said of* any subject”.⁴⁰ That is, particulars are the ultimate subjects of predication, which to Aristotle is an indication that they are ontologically basic. The universal properties in P2 can in a similar manner be said to be dependent on particulars, specifically items in P1, since the items in P1 are, like primary substances, not predicated of anything.⁴¹ So much for the dependency of universals on particulars; but how are we to understand the ontological priority of substances over properties?

The precise relation that holds between substances and properties is trickier to pin down. While universals and particulars are distinguished by whether or not they are “*said of*” other things, substances and properties are distinguished by whether or not they are present “*in*” other things, a term which Aristotle uses to signify a relation of “inherence”. That is, items in P1 and P2 are properties that inhere in, but do not constitute a *part* of, a subject.⁴² “Inherence” here means that they cannot exist apart from that in which they exist or are instantiated. Substances, on the other hand, are those items that are not *in* anything and so are, in this sense, ontologically independent. Aristotle’s

⁴⁰ Aristotle, however, does provide several other points about the nature of substances. See Chapter 5 of *Categories*.

⁴¹ The parallel between the primary/secondary substance division and the primary/secondary property division presumes the traditional interpretation of properties in P1. See n. 39.

⁴² As mentioned in the above notes, there is an important controversy regarding the nature of items in P1 and precisely what such properties inhere in. The traditional view adopted in the analysis above that primary properties are *in* primary substances sees such properties as being particulars or non-repeatable instances of properties that occur in individuals, rather than, say, properties that apply *only* to kinds (so that color is *in* body but not *in* Socrates) or as determinable accidents that *primarily* apply to kinds (so that color can exist separately of Socrates but not body). On the view that primary accidents are non-repeatable or particular instances, primary substances may be viewed as dependent in a certain way on primary accidents as well. That is, they depend on accidents in certain categories to exist but not any particular instance of an accident. But particular accidents cannot exist without that particular substance.

position implies that the properties in P1 and P2 ultimately inhere in and are dependent on substances but not the reverse. That is, inherence posits an asymmetrical dependency of properties on substances so that properties are dependent for their existence on substances whereas substances do not depend (absolutely) on properties. This will be a core assumption in the Aristotelian theory of predication that Rāzī will question. That is, Rāzī sees no reason why the relation cannot be viewed as being symmetrical, a problem that moves him to develop his alternative theory of *structured universals*, as discussed in Chapter 2.

As we have it, it would seem that all things are either substances or properties and all properties ultimately inhere in substances. This, however, would omit perhaps the most important class of properties, *differentiae*, which do not inhere in a subject. As stated, properties of the first kind, i.e., inhering properties, were those that were *in* a subject but *not as parts*. *Differentiae*, by contrast, *are* parts or constituent properties of the subject and as such are not *in* a subject. The inherence relation, signified by *in*, excludes the notion of being a constituent or part, as clarified further shortly below. To distinguish the two kinds of properties, we will loosely call inhering properties “accidents”. The crucial distinction here is that *differentiae* are parts that constitute the subject, whereas accidents presume the existence of a subject. The role of constituent or “internal” (*dākhil*) properties that are the parts (sing.: *juzʿ*) of the essence will be central to Rāzī’s assessment of definitions and universals in Chapter 3.

Subsequent to setting out his fourfold division, Aristotle defines more precisely the *said-of* and *present-in* distinction in the following terms: if F is *said of* G, then the definition of F is predicated of G, whereas if F is *in* G, the definition of F is not

predicated of G. Both things that are *said-of* and those that are *present-in* comprise, in their own ways, the ontologically dependent items in the division, but the two are distinguished primarily with regard to their role in the definition of a subject.

Here, Aristotle makes a number of important distinctions. We have, on the one hand, genus, species, and differentia as comprising the universals that are *said-of* and, on the other, inhering properties or accidents that are *present-in*. Beginning with the *said-of* predication, genus and species are, in Aristotle's view, the universals that classify primary substances *fundamentally*, that is, as belonging essentially to ontologically basic entities. He states, "For only they [i.e., species and genera], of things predicated, *reveal* the primary substances. For if one is to say of the individual man *what he is*, it will be in place to give the species or the genus (though more informative to give man than animal); but to give any of the other things would be out of place—for example, to say white or runs or anything like that."⁴³ Aristotle's main examples of substance-classes are natural (biological) kinds, such as "man" and "animal". The genus is less informative because it is more general than the species and so it includes other species. Here species refer to the lowest natural kinds (*infima species*), though as we will see it can be viewed as a relative universal as well. As opposed to the genus, the infima species comprise individuals that can only be further divided into *accidental* classes rather than *natural* kinds (e.g., the breeds "dachshund" and "Chihuahua" are not species of "dog" but are ontologically arbitrary classes defined by properties accidental to an essential kind). Genus, here, is the class most proximate to the species of the individual, but the genus may fall under numerous superordinate genera (e.g., body → sublunary → living → animal → *human*).

⁴³ Aristotle, *Categories*, 2b30-35.

The line of genera moves from the most general to the most specific until it reaches the species, as in the given example. Genera appearing in one line cannot occur in another, i.e., genera form unique lines of superordinate and subordinate classes.

With regard to the differentia, Aristotle stipulates that those belonging to different genera (i.e., those in independent genera-lines) differ in kind. So, for example, “rational”, which is the differentia constituting the species “man”, occurs only in the genus “animal” and cannot occur in an independent genus, such as “knowledge”.⁴⁴ However, in the same line of subordinate and subordinate genera, the differentiae of the superordinate genera apply to the subordinate genera (i.e., “corruptible”, the differentia of “sublunary” in the above example, is predicated of “living”, “animal”, and “human”). These points, which are expanded or amended in other works, are crucial to Aristotle’s approach to universals and predication. Unlike Plato, Aristotle builds a hierarchy of classes and properties within which the *said-of* predication operates.⁴⁵ These remarks are also important for assessing his amendments to division, to which we now return.

Aristotle’s reforms with regard to the method of division, particularly as introduced in the *Topics* and *Posterior Analytics*, are formulated in the context of the above view of universals and predication, though the latter works add important clarifications or amendments to the *Categories*. With the first requirement, namely that of (i) successive differentiation, Aristotle seeks to achieve two primary ends of definition: to avoid arbitrary divisions and to ensure the unity of the object of definition. The former

⁴⁴ Knowledge is a kind of accident (for Aristotle, a “relative”) but even genera in the category of substance, say, “superlunary body”, and genera falling under it cannot (in the relevant sense) have “rational” as differentia.

⁴⁵ It might be noted here that Aristotle establishes a number of transitivity rules for the *said-of* predication so that “everything said of what is predicated will be said of the subject also”—e.g., the definition of the species and genus is said of the individual; that of the differentia is said of the species and the individual; but that of the species (and differentia) is not said of the genus.

concern was one that he shared with Plato, though Plato did not prescribe any specific rules regarding it. Successive differentiation would avoid arbitrary divisions by ensuring that a subordinate class properly succeeds the superordinate one. In a proper division of a class, the superordinate class can be predicated of the subordinate classes, whereas the subordinate class cannot be predicated of the superordinate class. Any division that violates this rule is invalid. For example, “gregarious” can immediately be ruled out as a division of “footed” since it *can* be predicated of the latter, whereas “biped” and “quadruped”, which are proper divisions of “footed”, cannot be predicated of “footed”.⁴⁶ This, of course, presumes Aristotle’s view of independent lines of genera and differentiae, as mentioned above.

Aristotle’s second concern, namely, ensuring the unity of the object of definition, was one that he did not share with Plato. To Plato, the object of definition need not form ontological unities; indeed, the definiendum was generally viewed as a conglomerate of forms. By contrast, Aristotle constructed his system precisely to ensure that successive differentiation leads to unities, that is, specifically, the natural kinds or species referred to above. Recall that differentiae occur in unique lines of genera and that the differentiae of superordinate genera apply to subordinate genera.⁴⁷ Given the hierarchy, if one divides successively, one will arrive at the final differentia (*differentia specifica*) that belongs to a species. But given that the differentiae of superordinate classes are predicated of the subordinate, the differentia specifica will entail all the preceding differentiae. Aristotle

⁴⁶ Note that the requirement provides a guideline in that it rules out improper divisions but it does not provide any reason to believe that those that are not ruled out *are* non-arbitrary or natural classes belonging to a higher class.

⁴⁷ Aristotle amends this point slightly; see *Topics*, VI, 144b12-30. For example, ‘biped’ can occur on the two independent genera ‘terrestrial animal’ and ‘winged animal’, so Aristotle adds the condition “if they do not both fall under the same genus”. That is, both are subordinate to ‘animal’.

adds here that intermediate differentiae are indeterminate and have no existence in nature without the final determination of the differentia specifica. Thus, though numerous differentiae belong to an object of definition (e.g., the forms “mobile”, “two-legged”, “sentient”, and so on), its unity is ensured by the fact that only the differentia specifica, which entails them all, is determinate.

The (real) definition of a thing thus contains two terms: the genus and the differentia specifica. The genus too, however, is viewed as indeterminate. As Aristotle states in the *Categories*, “[A]s the primary substances stand to the other things [i.e., of the fourfold division], so the species stands to genus.”⁴⁸ That is, the genus is a determinate thing only insofar as the differentia specifica determines its species.⁴⁹ In this way, Aristotle maintains the unity of the definiendum all the way up, so to speak; that is, from the individuals of a species back up the ontological ladder of genera and differentiae until all the essential properties of the essence are captured in a single statement of the definition. This concern for preserving the unity of the definiendum will be relevant to our subsequent analysis. In particular, Rāzī does not require that composite universals identify ontological unities. Though sensible essences that are “composite” (*murakkab*) may have a metaphysical unity, Rāzī doubts that we have epistemic access to the properties that constitute its unitary essence. Essences that are unities or “simples” (sing.: *basīṭ*) are thus limited to immediate sensibles or sensibilia (*maḥsūsāt*). Complex sensibles are viewed by Rāzī as phenomenal rather than metaphysical unities.

The second condition, that all the differentiae are set out simultaneously rather than one at a time, is also designed to avoid arbitrary divisions, but specifically insofar as

⁴⁸ Aristotle, *Categories*, 2b19-20.

⁴⁹ The dependency relation between species and genus is somewhat more complicated but, for the present, this characterization will do.

it secures a complete definition of a simple object. As such, definitions should not arbitrarily exclude essential properties, specifically differentiae, nor should they arbitrarily collect differentiae from independent lines of division. Aristotle believes that a primary problem here lies in the practice of “dichotomous” division, by which he specifically means dividing a genus one differentia at a time rather than dividing or composing *after* setting out all its differentiae. Aristotle lists a number of problems with dichotomous divisions, including that it entails only one final differentia. That is, dichotomous divisions do not lead to the successive line of differentiae we saw above that ensures the unity of the definiendum.⁵⁰ He states, “The very continuity of a series of successive differentiae in a division is intended to show that the whole is a unity. But one is misled by the usages of language into imagining that it is merely the final term of the series that constitutes the whole differentia.”⁵¹

Let us turn now from the universals that apply to the *said-of* relation of predication to those that apply to the *present-in* predication. Following his fourfold division in the *Categories*, Aristotle divides non-substances or accidents into nine *kinds*, which together with substance constitute the ten Aristotelian categories (i.e., substance, quantity, quality, relative, place, time, position, action, and passion). The categories were viewed, particularly by the late antique and medieval commentators, as a division of *things that are said (ta legomena)*, i.e., words or linguistic items, insofar as they are related to objects in the world. As such, they were viewed as constituting the highest genera of things. As discussed below, the ontological status of the categories (*al-maqūlāt*) will be questioned by Rāzī. Most importantly, perhaps, Rāzī is not convinced that they

⁵⁰ For more on the problems Aristotle raises against dichotomous division, particularly in his *Parts of Animals*, see Balme, “Aristotle’s Use of Division”, 74-78.

⁵¹ Aristotle, *Parts of Animals*, 643b34-37.

divide into essential kinds or, more specifically, into the *infima species* that serve as the foundation of the Aristotelian hierarchy of universals.

Aristotle divides accidents in another way, as kinds of predicables that occur in accidental predication, which is based on his more elaborate theory of predication in subsequent works of logic. Here, I will spend some time addressing Aristotle's theory of predication in the *Posterior Analytics* and the *Topics*. As noted above, his theory of *per se* predication, particularly as set out in *Posterior Analytics*, differs in significant ways from the *said-of/present-in* distinction in the *Categories*. Given the emphasis on sensible substances in the *Categories*, the fourfold division is primarily suited to address primitive predications that have substances or particulars as subjects (e.g., Socrates is man, Man is animal, Socrates is white). However, it is not so well suited to address predications whose subjects are universal accidents, as found in the sentence, "White is a color". The sentence should yield an essential predication, since color classifies white fundamentally, i.e., as its genus. Color is thus a part of the definition and essence of white. But if "color" is construed here as being *in a subject*, since it is a non-substance, then the subject in which it inheres would be an accident, namely "white", and the *Categories* suggests that only substances have things inhere in them. Even if we were to allow the inherence of an accident in an accident, we would still fail to obtain the desired predicative relation. That is, "color" would then be both *said of* and *in* "white", which would make it an accidental predication. On the other hand, if we say that "color" in this sentence is *said of* "white" but is *not in a subject*, then "color" would be a secondary substance, since secondary

substances are precisely those things that are *said of* but are *not in a subject*.⁵² It seems that, in the fourfold division, the predicative relations are fixed according to a prior division of terms into substance terms and accident terms. Thus, essential predication or the predication of the parts of a definition, namely the genus and differentia, apply only to subjects that are substance terms.

In the *Posterior Analytics* and *Topics*, sentences such as “White is a color” are construed as asserting an essential predication since predicates are viewed there as kinds of terms that obtain in kinds of essential and accidental predication. Importantly, the relevant kinds of terms or “predicables” are not determined according to whether the term signifies a substance or accident. Rather, a predicable is defined according to its relation to the *definition* of the subject. In the *Posterior Analytics*, Aristotle discusses four kinds of *per se* or essential predication, only two of which will concern us here.⁵³ In the first type, when *F* is predicated essentially of *G*, *F* is part of the definition of *G*; in the second type, when *F* is predicated essentially of *G*, *G* is part of the definition of *F*.⁵⁴ We shall refer to the first type as *e1*-predication and the second as *e2*-predication.

As such, “White is color” is an instance of *e1*-predication, since color is the genus, or part of the definition, of white. And so, irrespective of the subject’s categorial status, genus and differentia constitute essential or constituent properties of the subject.⁵⁵ On the other hand, *e2*-predication seems to introduce a new kind of predicate, which was

⁵² For a number of other problems with viewing the fourfold classification as corresponding directly to essential/accidental predication, see J.M.C Moravcsik, “Aristotle on Predication”, *The Philosophical Review*, 76 (1967), 80-96.

⁵³ Aristotle in fact discusses four kinds of *per se* prediction, but the other two kinds will not be relevant to our analysis.

⁵⁴ Aristotle, *Posterior Analytics*, 73a28-73b16.

⁵⁵ There is some debate over whether the differentia falls into *e1*-predication or *e2*-predication or both. Most commentators, including Avicenna, consider differentia an *e1*-predicate. See sources cited in Barnes’ commentary in *Posterior Analytics*, 114.

identified, particularly by the commentators, as “*per se* incidentals” or, as I will term it, *per se* accidents (since, as we will see, it stays closer to the Arabic terminology). Such predicates do not constitute the parts of the essence of a subject but are said to hold, in some way, essentially of the subject. What precisely Aristotle intends to include in this category, and how it constitutes necessary predication, is a matter of much debate in modern scholarship. Here, I will focus on one interpretation advanced by the later commentators, specifically focusing on Avicenna.

One final note on Aristotle: *E2*-predications introduce a necessary and essential kind of predication whose predicates are not constituent properties of the subject, a notion that is not accommodated by the fourfold division. In the *Topics* I.4, Aristotle attempts to show that predicates divide exhaustively into the following: genus (or differentia), definition, proprium (proper accident), and accident (common accident). Though the differentia is initially omitted, he attempts to slip it back into the list under genus.⁵⁶ It has been argued that Aristotle’s trouble in accommodating differentia was due to the criteria he followed in his division of predicables.⁵⁷ Following a different logic of division in his *Isagoge*, Porphyry classifies the predicables into the following: genus, species, differentia, proper accident and common accident.⁵⁸ Differentia, in Porphyry’s division,

⁵⁶ See Robin Smith, *Aristotle, Topics, Books I and VIII, Translated with a Commentary* (Oxford: Clarendon Press, 1997), 72-74.

⁵⁷ See, C. Evangelou, “Aristotle’s Doctrine of Predicables and Porphyry’s *Isagoge*,” *Journal of the History of Philosophy* 23 (1985), 15-34.

⁵⁸ As Evangelou has noted, Porphyry in his *Isagoge* approaches predicables in a general manner that attempts to address varying approaches to and interpretations of definition and predication (e.g., he distinguishes at least three senses of differentia). That is, his aim is not limited to the interpretation of Aristotle’s *Topics* or *Categories*. This is an important point in our context, as later commentators seem to have inherited this approach and it seems to be evident in Avicenna’s treatment, as the following will make clear. In the *Madkhal*, Avicenna attempts to weed out varying notions and problems involved in definition and predication that go beyond the interpretation of specific Aristotelian texts. See Evangelou, “Aristotle’s Doctrine”. See Avicenna’s approach to dividing predicables in I.8 of the *Madkhal*, which seems to follow Porphyry’s rationale that Evangelou outlines schematically (*Madkhal*, 41).

is included as a predicate distinct from genus and together they seem to replace “definition” in Aristotle’s list. Moreover, Porphyry includes “species” which is omitted by Aristotle.⁵⁹ These three predicates, which we have already encountered in the *Categories*, constitute the essential predicates or parts of the subjects.⁶⁰

Notably, however, Aristotle makes a distinction here not found in his fourfold division between types of accidental or non-essential properties (viz., proper and common accidents).⁶¹ This derives from his approach to classifying kinds of predicables in the *Topics*. Aristotle divides properties into those that “counterpredicate” with the subject and those that do not. Counterpredication amounts to the following relation: X counterpredicates with Y if everything X applies to Y applies to *and* everything that Y applies to X applies to. Properties that do not counterpredicate are either parts of the definition of the subject (i.e., genus and differentia) or not definitional parts (i.e., common accident).⁶² Definitions, on the other hand, counterpredicate. But not all predicates that counterpredicate are definitions; for example, ‘risible’ applies to all and only humans but is not the definition of the latter nor a part of its definition. Like the common accident “white”, “risible” is predicated of “human” accidentally. But unlike white, which applies to human as well as other kinds, risible applies only to human.

⁵⁹ Porphyry has been much maligned for including species because, as his critics claim, Aristotle took species, not individuals, to be the subject of predication in the *Topics*. Evangeliou suggests that the criticism does not hold on a number of counts. For one, accidents cannot be interpreted as having the same species as the subjects, i.e., accidents do not generally inhere in accidents; rather, the subjects in such cases must be the individuals of a species.

⁶⁰ The three can be further subdivided. The genus and species signify *what* the subject is (i.e., its essence), whereas differentia is said to signify *what sort* of thing the subject is (i.e., its quality). For Avicenna’s defense of this subdivision, see *Madkhal*, 44-45. Avicenna distinguishes between two kinds of predication (one in *Demonstration* and another in the *Madkhal*), which will allow differentia to be included in predications of *what a thing is*, specifically in *per se* predications in demonstrations. On the underdetermination of Aristotle’s text on this, see Smith, *Topics*, 74-75.

⁶¹ Accident I will use generally to refer to any property that is not essential or a constituent part of the subject.

⁶² Note the problem he encounters here with differentia, which in the strict sense does counterpredicate.

Aristotle's proper accident would seem to make a welcome addition, particularly given the above dilemma regarding *e2*-predication. That is, the proper accident seems to make a good candidate for the role of the *e2*-predicate or *per se* accident, as we have called it. Indeed, this is the view that has often been attributed to the commentators but, as we will see, the matter is somewhat more complicated.⁶³

Returning to Avicenna, our discussion will take a general look at some important developments in logic regarding the nature of the predicables. But a particularly important matter that we will attempt to sort out, at least to some extent, is Avicenna's approach to *per se* predication, and especially the problem of interpreting *e2*-predicates. In *Demonstration* II.2, Avicenna divides *per se* predications (*al-ḥaml al-dhātī*) into the two discussed above, viz., *e1*-predication and *e2*-predication, which he views as "the two recognized [kinds of predication] in the *Book of Demonstration*".⁶⁴ The term "*dhātī*" derives, as Avicenna states, from *bi-dhātihi*, which corresponds to Aristotle's use of *kath' hauto*, that is, *per se* or in itself, in the *Posterior Analytics*.⁶⁵ Avicenna states that the *dhātī* in the context of demonstration is equivalent to what is predicated "by way of the 'what-is-it'" (*maqūl min ṭarīq mā huwa*). As we will see, predications in relation to the "what-is-it" (*mā huwa*), i.e., the essence of a thing, can be taken in two distinct ways: "by way of" (*min ṭarīq*) or "as the answer to" (*fī jawābi*). The former sort of predication is relevant to the science of demonstration, whereas the latter applies to the division of

⁶³ Barnes, *Aristotle, Posterior Analytics*, 113-114.

⁶⁴ Avicenna, *Demonstration*, 125. In the *Najāt*, he states: "Essential predication is said in two ways: either the predicate is taken in the definition of the subject, like "animal" in the definition of "man". Or, the subject is taken in the definition of the predicate or [is taken as] the genus [of the subject], like "snub-nosed" in whose definition "nose" is included and "triangle" in whose definition "plane" is included." *Najāt*, I, 86.

⁶⁵ "*bi-dhātihi*" is used to translate *kath' hauto* in Abū Bishr Mattā's rendition of *Posterior Analytics*. See *Maṭīq Arisṭū*, II, 322-23.

predicables in the Isagoge tradition.⁶⁶ Here, Avicenna clarifies by stating that the *dhātī* in the context of demonstration corresponds to what enters into the definition of a thing, which includes its genus, the genus of the genus, its differentia, the differentia of its genus, its definition, and every constituent part of the essence of a thing (*kull muqawwimⁱⁿ li-dhāti al-shay^ʿ*).⁶⁷ The distinction between different sorts of predication, and the corresponding senses of *dhātī*, will be clarified shortly. It might be noted that Avicenna here points to the problem indicated above regarding the place of the differentia amongst the predicables. He states, “We must be certain from this that differentiae are suitable (*ṣāliha*) to be included *as the answer to the what-is-it* in the manner that genus is suitable.”⁶⁸ Avicenna is troubled by the fact that, in the Porphyrian division of the five predicables, the differentia is not predicated of the *what-is-it* (i.e., *al-māhiyya*) but of the *what-sort-of-thing-it-is* (i.e., *ayyu shay^{ʿin} huwa*), a view that can be misleading especially in the context of demonstrations where differentiae are included in essential predications.⁶⁹

⁶⁶ See the important points raised regarding the background of the scientific questions in the recent edition of the text and translation of Yaḥyā b. ʿAdī’s treatise on the scientific question by Stephen Menn and Robert Wisnovsky, “Yaḥyā Ibn ʿAdī’s Essay on the Four Scientific Questions regarding the Three Categories of Existence: Divine, Natural and Logical. Editio princeps and English translation”, *Mélanges de l’Institut dominicain d’études orientales du Caire (MIDEO)* 29 (2012), 73-96.

⁶⁷ Avicenna, *Demonstration*, 125.

⁶⁸ Ibid.

⁶⁹ Here, I summarize a few points in advance: Avicenna already discusses the problem in I.7 of the *Madkhal*. In chapters 6, 7, and 8 of Book I, he examines differing definitions of *dhātī*, definitions of “that which signifies the essence” (*al-dāll ʿalā al-māhiyya*), and the relation between the two. The discussion is preliminary to the principles involved in the “Porphyrian” division of predicables in chapter 8. Importantly, Avicenna points out that “what signifies the essence”, here, is a specific technical sense (*al-taʿaruf al-khāṣṣ*) used by the logicians to derive the five predicables. In this sense, what signifies the essence is *only* that which signifies it completely (*yadullu ʿalā ḥaqīqati dhātī al-shayʿ bi-kamāliḥā*). Thus the genus and species signify the essence but the differentia does not. Note, however, the genus signifies the essence *only* when it applies to the *what-is-it* of items differing in species (e.g., “animal” signifies the complete *common* essence of “horse”, “man”, and “cow”, but of “man” alone it signifies a part). In this “technical” sense, there is a *dhātī* term that does *not* signify the essence, namely the differentia. In the common usage of “what signifies the essence”, the phrase is equivalent to *dhātī*, so that all *dhātī* terms, however they signify, signify the essence, in which case the differentia would be included. Avicenna criticizes those who take the common usage but still claim that the differentia does not signify the essence. All this has a long and

In *Demonstration*, Avicenna introduces the notion of “essential” or “*per se* accidents” (*al-a^crād al-dhātīyya*), which, at least in name, corresponds to the *per se* accidents or in itself incidentals we discussed above in the context of *e2*-predications.⁷⁰ But before examining the details of *dhātī* accidents in *Demonstration*, let us turn to his initial discussion of *dhātī* predicates in logic, which can be found in the *Madkhal*. It should be noted in advance that we find no clear treatment of the category of *per se* accidents in the *Madkhal*, though there are some hints.⁷¹ Indeed, far from putting the two, seemingly paradoxical, terms together, Avicenna in the *Madkhal* makes a watertight distinction between *dhātī* terms and *‘araḍī* or accidental terms. Here, his discussion of *dhātī* and “that which signifies the essence” (*al-dāll ‘alā al-māhiyya*), specifically in chapters 5 to 7 of Book I, is aimed specifically at introducing the division and definition of the Porphyrian predicables in chapter 8.⁷² He begins by dividing terms according to

complex history, which concerns particularly the commentarial tradition of the *Isagoge*. This history is evidenced in Avicenna’s repeated reference to predecessors and divergent views in his discussion of the predicables in the *Madkhal* and elsewhere. An assessment of the history is well beyond the scope of this discussion, and it will not in any case be directly relevant to our subsequent analysis. See Evangeliou, “Aristotle’s Doctrine”; See also Jonathan Barnes, *Porphyry, Isagoge, Translated with an Introduction and Commentary* (Oxford: Clarendon Press, 2003), 8-10.

⁷⁰ Though he refers to *al-a^crād al-dhātīyya*, or closely related terms, prior to II.2 of *Demonstration*, this chapter provides his most thorough treatment of the subject. The closely related terms he uses to signify *per se* accidents before II.2 include: *al-ma^cānī al-dhātīyya*, *al-a^crād al-lāzima*, and *lawāzim*. See, for example, *Demonstration*, 88, 93, 94, 122.

⁷¹ Unlike Porphyry, who delves immediately into the predicables in the *Isagoge*, Avicenna provides a number of introductory chapters. Chapters 6, 7 and 8 of Book I discuss the division of terms into essential (*dhātī*) and accidental (*‘araḍī*). These sections however do not discuss the sense of “*dhātī*” used in *Demonstration* to qualify accidental properties, which however is noted in the *Isagoge* section of the logic of *al-Ishārāt*, as mentioned below. In addition to understanding the problems addressed in the division of predicables, a study of the *Madkhal* can address the important question of what precisely the role of logic is for Avicenna *qua* an Aristotelian, a question that has drawn the attention of scholarship with regard to the late antique commentators. See, for example, Riccardo Chiaradonna, “What Is Porphyry’s *Isagoge*?”, *Documenti e studi sulla tradizione filosofica medievale* 19 (2008), 1-30. In the following, I will use “*Isagoge*” (in italics) to refer to the original work by Porphyry, and “Isagoge” (without italics) to refer to the tradition of works inspired by the *Isagoge* which were written in Late Antiquity and in the Middle Ages.

⁷² Avicenna’s analysis of the predicables proceeds in a general fashion that considers varying definitions, which supports Evangeliou’s point that the *Isagoge* is not simply an introduction to the *Categories* or the *Topics*. This, however, is not to say that Avicenna does not have an Aristotelian agenda. Indeed, he sorts

whether they are the constitutive parts of a thing or not. *Dhātī*, he states, refers to the constitutive parts of a thing that combine (*taʿtalimu*) to constitute the essence, (e.g., body, mobile, sensible and so on are all *dhātī* attributes of man).⁷³ Accidental properties, by contrast, presume the existence of the essence. Avicenna then distinguishes accidents that, like *dhātī* properties, are “inseparable” (*lāzim*) of the subject from those that are separable (*mufāriq*). Inseparable properties (*lawāzim*) however are not *dhātī*, because “the essence [must] first be constituted, then the [*lāzim*] follows upon the [essence]” (*al-māhiyya takūnu mutaqarrirat^{an} awwal^{an}, thumma yalzamuhā hiya*).⁷⁴ That is, a *dhātī* here is strictly construed as a constitutive part, which more specifically is a property that *precedes* the conception of the essence.⁷⁵ In distinguishing between constitutive and inseparable properties, Avicenna draws on his tripartite distinction of the essence into

through diverging definitions in a manner that suggests precisely that. Note also that Avicenna wrestles with the principles of Porphyry’s division; for example, in exploring differing interpretations of whether the species in the primary sense here is the lowest kind or the *infima species* (*naw^c al-anwā^c*) or the relative species (*al-naw^c al-idāfi*). Significantly, he notes here how Aristotle observed the division so that real differentiae are preserved unlike later logicians whose division applies only to differentiae that are predicated of many species. See *Madkhal*, 56-59.

⁷³ By *dhātī*, Avicenna states that he specifically means any property whose removal (*raf^c*) necessitates the removal of the essence. There is a subtlety I shall gloss over here that arises from a problem Avicenna considers. That is, it might be said that *dhātī* properly refers to the constitutive part of an essence and not a more general class that includes the constitutive parts as well as those that signify the whole essence (e. g., “animal” and “rational” would then be *dhātī* to “man” but “man” would not be *dhātī* of itself or even of individual men). In this case, *dhātī* terms will always be distinct from what signifies the essence. Avicenna however provides the logicians’ terminology for *dhātī*, which includes terms that signify the complete essence. He states, “The universal term, if it signifies a concept (*ma^c nā*), its [i.e., the term’s] relation to the particulars which occur to its concept is a relation that if conceived (*tuwuhhimat*) as not existing, it is necessary that the essence (*dhāt*) of that individual thing is not existent.” That is, the removal (*raf^c*) of the *dhātī* necessitates the removal or non-existence of the individuals that possess the essence, whether or not it is the essence of the individual itself or a part that constitutes its essence. This at least is what he says (see *Madkhal*, 31-32). I will return to Avicenna’s more precise notion of *dhātī* in Chapter 2, where Rāzī will contrast it with his own notion of structured universals.

⁷⁴ Ibid., 34.

⁷⁵ By constitutive part, Avicenna here means the following: for any essence x and any y that is a constitutive part of x, the conception of x is dependent on the prior conception of y, and the conception of the non-existence of y necessitates the conception of the non-existence of x. See *Madkhal*, 34. There are several important questions lurking here that will be addressed in the following chapters, specifically questions centering on mereological relations (i.e., the ontological relations between the wholes and parts of universals). The manner in which the parts of an essence are prior in conception to the essence will also be discussed.

essence in itself, essence in individuals (referred to in the following as *in re*), and in the mind or intellect (referred to as *in intellectu*). Constitutive properties concern the quiddity in itself, whereas inseparable accidents follow the quiddity in one of its two modes of existence; that is, it “is not of that which realizes the essence” (*laysat mimmā yuḥaqqiqu al-māhiyya*).⁷⁶ For reasons made clear in the following chapters, I will call inseparable accidents or *lawāzim concomitant properties* or simply *concomitants*.

Importantly, Avicenna notes that there are *lawāzim* that may occur to the essence *in virtue of* the essence itself (*min ḥaythu al-māhiyya*) and not in virtue of one of the two modes of its existence (*al-wujūdāyn*).⁷⁷ The point is partially clarified when, a few paragraphs later, Avicenna subdivides *lawāzim* into those that can be called “immediate” and those that are not.⁷⁸ Immediate *lawāzim* are primary (*awwalī*) and distinctly conceived without an intermediary property (*bayyin laysa bi-waṣīṭat ʿarīḍⁱⁿ ākhar*). More specifically, it is “impossible” to negate such properties of the essence *after* the quiddity is (conceptually) constituted.⁷⁹ Examples that he provides of such *lawāzim* include the fact that the sum of the angles of a triangle equals the sum of two right angles, and the risibility of man.⁸⁰

⁷⁶ *Madkhal*, 35.

⁷⁷ *Ibid.*

⁷⁸ He states: “Of accidents, there are those that accompany (*yalzam*) the essence in a primary immediate manner without another accident as an intermediary (*luzūm^{an} awwalīyy^{an} bayyin^{an} laysa bi-waṣīṭati ʿarīḍⁱⁿ ākhar*). *Ibid.*

⁷⁹ *Ibid.* Avicenna states in the *Ishārāt*: “Such kinds [of *lawāzim*], if their concomitance is not by an intermediary, are known [with a] necessary concomitance (*kānat maʿlūmat^{an} wājibata l-luzūmi*) and so are impossible to be removed in estimation (*fī al-wahm*), though they are not constitutive [of the essence]” (*Sharḥ al-Ishārāt*, I, 64). Avicenna here makes a few distinctions concerning what he means by conception (*taṣawwur* or *taʿaqqul*), which will be discussed subsequently in the context of definitions.

⁸⁰ Avicenna notes here that without this primary kind of *lawāzim*, it would not be possible to affirm the kinds of *lawāzim*, namely, the second(ary) kind of *lawāzim* (*al-qism al-thānī*) which are not immediately known to occur with the essence but rather through an intermediary. The argument he provides for this is that if there are no immediate *lawāzim*, an infinite regress of mediate *lawāzim* will ensue. That is, in effect, no attribute will ground *lawāzim* in the essence. See also *Sharḥ al-Ishārāt*, I, 64.

The discussion provides some clarification of the epistemological status of *lawāzim*, which will come in handy in the subsequent chapters. What we need, however, is a clarification of the precise causal or modal relation between *lawāzim* and essences to evaluate whether they, like *per se* predicates, are necessary and causally explanatory. This will allow us to assess whether *lawāzim* might figure into the predication theory of *Demonstration*. In the *Madkhal*, *lawāzim* crop up incidentally in a number of places.⁸¹ Avicenna refers to *lawāzim* in a subsequent chapter on differentia, where he assesses the various senses of differentia employed by the logicians. He divides the first sense into three: general (*‘āmm*), proper (*khāṣṣ*), and most proper (*khāṣṣ al-khāṣṣ*).⁸² The first two senses of differentia in fact signify accidental properties (*‘araḍī*).⁸³ The last sense specifies the constitutive differentia of the species (*al-faṣl al-muqawwim li-l-naw‘*), which is an essential or *dhātī* property.⁸⁴ Avicenna identifies the first sense with any accident that might *distinguish* x from y, even if the property might at another time apply to y to distinguish y from x. He identifies the second sense, i.e., *khāṣṣ*, with *lawāzim*.⁸⁵ *Lawāzim* are further divided into those that apply to one species always and those that apply to one species but can possibly apply to another.⁸⁶ The former he identifies with the proprium or proper accident (*al-khāṣṣa*). The proprium, he states, does not distinguish

⁸¹ He discusses *lawāzim* again in his chapter on the differentia, where like Porphyry he assesses various senses of differentia used by the logicians.

⁸² Avicenna, *Madkhal*, 74.

⁸³ Note that this is contrary to his initial division of the predicables. But, as mentioned, the discussion proceeds in a manner that takes up diverging views.

⁸⁴ The *khāṣṣ al-khāṣṣ* is the *differentia specifica* which “if conjoined with the nature of the genus, constitutes of it a species, after which whatever is concomitant to it [i.e., the species] occurs to it concomitantly and whatever is accidental to it occurs to it accidentally (*wa ba‘da dhālika yalzamuhu mā yalzamuhu wa-ya‘riḍu lahu mā ya‘riḍu lahu*).

⁸⁵ He states, “*wa-ammā al-faṣl al-khāṣṣ fa-dhākila huwa al-maḥmūl al-lāzim min al-‘araḍiyyāt*”. *Madkhal*, 73.

⁸⁶ The example of the former is the property of having (visible) skin which differentiates man from horse. The example of the latter is dark skin which differentiates the Abyssinian from lighter skinned peoples. He states both the first and second senses of the proper differentia are separable from the individuals of a kind, and so the difference between them seems to be that the latter does not separate in actuality.

individuals of a species from other individuals of that species “because it is a concomitant (*lāzim*) of the nature of the species (*ṭabīʿat al-nawʿ*)”.⁸⁷ The discussion indicates that propria, unlike other accidental properties, hold necessarily of the species, but Avicenna does not elaborate much further on this.

In the following chapter, on the proprium, Avicenna once again begins by considering the various senses that the term acquires in the received logical corpus. The second sense is that which belongs properly to the species in itself and does not apply to other species. This category is further divided into properties that are specific to each individual of the species always (*fī kull zamān*) and those that are not. Avicenna states that the latter is what properly constitutes one of the five predicables, but that the former is more properly the proprium, which he terms the “real proprium” (*al-khāṣṣa al-ḥaqīqiyya*).⁸⁸ The real proprium is a “perpetual concomitant” (*al-lāzima al-mudāwima*) that holds always of all individuals of the species. Again, however, Avicenna fails to elaborate further on the nature of this category of *lawāzim*, which seems to correspond to the type of propria he refers to in his discussion of differentia. There, however, he described the relation of the propria and species temporally and modally; here the relation is qualified only temporally.

Following his discussion of the predicables, Avicenna examines the similarities and differences (*al-mushārakāt wa-l-mubāyanāt*) that hold between the predicables,

⁸⁷ This again goes against his initial division where the proprium, as mentioned above, is one of the predicables distinct from the differentia. But, as noted, Avicenna is attempting to address logical terminology in a general manner.

⁸⁸ Avicenna seems to consider the sense of propria proper to the five predicables that includes the real propria. He divides the general sense of propria into four: (i) propria proper to more than one species (e.g., “two-legged”, which distinguishes man from horse); propria proper to one species, which divides into three: (ii) propria that does not hold of all the individuals (e.g., the skill of farming); (iii) propria holding of all individuals always (e.g., “risibile”); and (iv) propria holding of all individuals of the species but not always (e.g., “young”). Avicenna suggests that this sense of propria applies only to the lowest species.

beginning with the genus and differentia.⁸⁹ Avicenna clarifies, in this discussion, the distinction noted above between predication *by way of* and predication *as answer to*. He notes in the “second similarity” that the similarity holds if “what is meant by predication *by way of* (*al-ḥaml min ṭarīq mā huwa*) is other than what is meant by predication *as the answer to* (*al-ḥaml fī jawāb mā huwa*), as we will clarify shortly.”⁹⁰

The similarity at issue is that everything predicated of the genus or the differentia is predicated of the species falling under the genus or differentia. Recall that this is the transitive relation discussed above in the context of the *Categories* which is related to the unity of definitions. In any case, in his discussion of the “fourth difference”, Avicenna asserts the distinction in predication between the genus and the differentia, which, as discussed above, concerns the division of the predicables in the Isagoge; that is, the genus is predicated of the *what-is-it*, whereas the differentia is predicated of the *what-sort-of-thing-is-it* (*ayyu shayⁱⁿ huwa*). Avicenna, as discussed, maintains the distinction insofar as it concerns the division of predicables in the Isagoge. However, he raises the following objection: “But one could say: ‘You have stated clearly on various occasions that the differentia can also be predicated *by way of* the *what-is-it*, especially in *Demonstration* (*Kitāb al-Burhān*).”⁹¹ Avicenna responds thus: “There is a distinction between our saying that a thing is predicated *as answer to* the *what-is-it* and between our saying that it is predicated *by way of* the *what-is-it*, just as there is a difference between our saying ‘essence’ and ‘that which is internal to the essence’ (*al-dākhil fī al-māhiyya*). And so, that which is predicated *by way of* is everything that enters into the definition of the essence and is in that way (*wa-yakūnu fī dākhila al-ṭarīq*), even if it does not by itself signify the

⁸⁹ Cf. Porphyry, *Isagoge*, 12-19

⁹⁰ Avicenna, *Madkhal*, 92.

⁹¹ Avicenna, *Madkhal*, 95.

essence (*dāll ʿalā al-māhiyya*). And that which is predicated *as answer to* is that which by itself is the answer when one is asked of the *what-is-it*. So the differentia is internal to the essence and is predicate *by way of*, since it is a part (*juzʿ*) of the thing which is the answer to the *what-is-it*, though it is not by itself predicated *as answer to* the *what-is-it*.⁹² Given our previous discussion, Avicenna’s distinction makes quite a bit of sense. That is, the distinction between the two kinds of predication stems from the fact that the *Isagoge* deals with predication in a different manner than how it is dealt with in the *Posterior Analytics*. The *Isagoge* tradition deals more broadly with problems/questions and responses. This seems to be rooted in Aristotle’s approach to the predicables in the *Topics*, which is aimed at addressing the “problem” (*problēma*) and the “premise” (*protasis*), though the nature and history of the *Isagoge* tradition will go beyond the scope of this chapter.⁹³ By contrast, in the *Posterior Analytics*, predication focuses specifically on the relations that hold between subjects and predicates in the premises of a demonstration, particularly as they constitute necessary and causal explanations.

Returning to *lawāzim*, there is not much else to be found in the *Madkhal* on such kinds of accidents that is particularly illuminating with regard to causal and necessary explanations. In the *Isagoge* section of the logic of the *Ishārāt*, following the discussion of *dhātī* (specifically, *al-dhātī al-muqawwim*), Avicenna does devote a separate section to *lawāzim* or, more specifically, *al-ʿaraḍī al-lāzim al-ghayr al-muqawwim* (the non-constitutive concomitant accident).⁹⁴ But again there is not much on the precise causal or modal relation between *lawāzim* and essences. The focus is on the epistemological question of immediate and intermediary *lawāzim*. In his commentary, Rāzī underscores

⁹² Ibid., 95-96.

⁹³ Smith, *Aristotle, Topics*, 56-57.

⁹⁴ *Sharḥ al-Ishārāt*, I, 64.

the ambiguity in Avicenna's notion of *lawāzim*. That is, Avicenna defines *lawāzim* here as "that which accompanies (*yaṣṣhubu*) the essence but is not a part (*juzʿ*) of it."⁹⁵ Rāzī suggests that we should interpret "accompany" as "perpetually accompanying" to distinguish *lawāzim* from separable accidents (*al-ʿaraḍī al-mufāriq*). But this still raises a problem. That is, Rāzī argues that even if we take *lāzim* to be that which necessarily applies to a thing (*wājib al-thubūt*), this would not exclude properties that are accidental or, as he states, coincidental (*ittifāq^{an}*). For example, that man is rational is a fact that is "inseparable" from the fact that donkeys bray, but Avicenna, Rāzī states, seems to make neither one a *lāzim* of the other. That is, Avicenna seems, in Rāzī's reading, to have something more specific in mind, and Rāzī will attempt to spell it out: the *lāzim* is that which is inseparable from a thing *because of* some thing that "reverts to" the essence (*li-amr ʿāʾidⁱⁿ ilayhi*) and is not a part of the essence.⁹⁶ Rāzī explains that he has formulated the definition (specifically, with the vague phrasing of "reverts to" or, more literally, "returns to") to include *lawāzim* of the essence as well as existence, a distinction we noted above.⁹⁷ Rāzī's point is interesting because, in forcing Avicenna's hand, Rāzī in effect wants Avicenna to make explicit whether a *de re* or *de dicto* reading of necessity is at issue here. That is, do *lawāzim* identify properties that apply necessarily to the thing (i.e., the subject as an entity) or does the necessity in such cases of predication apply to the statement(s)? As we will see in Chapter 3, Rāzī will apply this problem to the notion of constituent parts as well, arguing that only *de re* necessity applies to the immediate *per*

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ He includes non-immediate *lawāzim* as well in this definition. Rāzī says that this is why he uses the somewhat ambiguous phrase "*li-amr ʿāʾidⁱⁿ ilayhi*" here. However, if one intends only *lawāzim* of the essence, the definition of *lāzim* would simply be "that which is inseparable from the essence *in virtue of itself* (*li-naḥsihā*)", i.e., in virtue of the essence.

se premises that are acquired by real definitions. However, he invokes there his epistemological principles, discussed in Chapter 1, that knowledge of such constitutive properties are beyond our grasp and that, accordingly, *per se* predication is ultimately problematic.

In any case, however much Rāzī might want to sharpen the use of the term *lawāzim*, Avicenna himself is not particularly concerned and, perhaps, for good reason. That is, Avicenna seems to use the term as a catchall, which he subdivides in varying ways to clarify how various kinds of properties might share some significant characteristics. But as a category of a predicable it never seems to have a distinct status in his theory of predication, a point we will clarify further with regard to his views in *Demonstration*. He certainly does not identify *lawāzim* directly as the category of *e2*-predicates, even if ultimately the latter are a kind of *lawāzim*, as we shall see.

However, following his discussion of *lawāzim*, Avicenna in the *Ishārāt* devotes a section to *per se* accidents under the Pointer (*ishāra*) on the “*dhātī* in another sense”.⁹⁸ We will return to this discussion in the *Ishārāt*, which (apparently) diverges from the treatment of *per se* predication in *Demonstration*. But, for now, it can simply be noted that the section of the *Ishārāt*, which corresponds to the topics treated in the Isagoge tradition, does, at least, point out how *dhātī* might apply to non-constitutive or accidental properties, whereas, in the *Madkhal*, a strict distinction was maintained between *dhātī* and *‘araḍī*. This, as Avicenna will clarify in *Demonstration*, is because, in the Isagoge, *dhātī* or essential properties are construed strictly as those that are constitutive of the essence, a point already indicated in the above analysis.

⁹⁸ *Sharḥ al-Ishārāt*, I, 75.

Indeed, in II.2 of *Demonstration*, Avicenna states, “Some have deviated to such an extent from the right path (*al-maḥajja*) on this matter by their misapprehension that they believed that the predicates in demonstrations are composed only and absolutely of constitutive parts (*muqawwimāt*). [This is] because when they called the constitutive part *dhātī* in accordance with the customary way of their studying the *Isagoge*, and understood there that the *dhātī* is simply the constitutive part, they thought that the *dhātī* in the ‘Book of Demonstration’ is precisely that and is the [explanatory] cause (*‘illa*).”⁹⁹ Prior to this, in II.2, Avicenna focuses on clarifying terminology primarily in order to ensure that *e2*-predicates, or *per se* accidents (*al-awāriḍ al-dhātiyya*) as he specifically labels them here, are not excluded from the science of demonstration. He thus examines various senses of *dhātī* and excludes those that play no role in demonstration.¹⁰⁰ The two senses of *dhātī* that do fall within the science of demonstration are the two senses mentioned above: (1) constitutive properties (i.e., parts of the definition) and (2) *per se* accidents.

Avicenna spends much of the chapter clarifying the status and nature of *per se* accidents, specifically with regard to how they constitute necessary and causal explanations. It is quite obvious from this analysis that Avicenna found many interpreters of the *Posterior Analytics* to be less than able philosophers. Here, it can be noted that his discussion of *per se* accidents in *Demonstration* explains, in part, his reluctance in the

⁹⁹ He states, “*wa-qad balagha min ‘udūli ba‘ḍi al-nās ‘an al-maḥajja fī hādhā al-bāb li-sū’ fahmihi an [sic] ḡann ann al-maḥmūlāt fī al-barāhīn lā takūnu al-batta illā min al-muqawwimāt, li’annahu lammā jarat al-‘āda ‘alayhi fī ta’ammulihi li-kitābi Īsāghūjī bi-an yusammū al-muqawwim dhātiyyan wa-lā yafahama hunāka min al-dhātī illā al-muqawwim, ḡann ann al-dhātī fī Kitāb al-Burhān dhālika bi-‘aynihi wa-huwa al-‘illa’*” (*Demonstration*, 128).

¹⁰⁰ It can be noted that two senses that he excludes are: (1) the sense of *dhātī* corresponding to the fourth type of *per se* predication that Aristotle mentions at *Posterior Analytics* 73b10; (2) immediate or primary accidents which correspond to (some of) the immediate *lawāzīm* discussed above. See *Demonstration*, 127–28.

Madkhal to elucidate the modal relation between certain kinds of accidental properties (e.g., *lawāzim* and *propria*) and the essence. That is, the discussion in the *Madkhal* approaches universals in a manner that does not directly concern the problems of the science of demonstration. Again, regarding the misleading role of the *Isagoge*, he states, “They did not know that there are no ‘*dhātī*’, ‘necessary’ (*al-darūrī*) or ‘universal’ [properties mentioned] in this book [i.e., *Demonstration*] that are mentioned in [any] book before it.”¹⁰¹ Here, the distinction between predication *by way of* and predication *as answer to* comes into play.

In his discussion of *per se* accidents, it is clear that Avicenna is assessing a problem with a long and complex history of interpretation of Aristotle’s *Posterior Analytics*, one that reaches back to the late antique commentators.¹⁰² A full appreciation of Avicenna’s analysis should take into consideration this rich commentarial history, specifically regarding the interpretation of what precisely Aristotle means when he defines *per se* accidents as those in whose definition the subject is included. Avicenna, as mentioned, cites Aristotle’s definition but adds, right at the outset, a number of ways in which this definition can be viewed as holding, specifically regarding what is to be included in the definition of the predicate.¹⁰³ As the discussion proceeds, Avicenna adds

¹⁰¹ By “before”, Avicenna is of course referring to the order of the books in the *Organon*. That Avicenna distinguishes the necessity in *Demonstration* from the necessity in the preceding books, especially *Qiyās*, is significant for the study of his syllogistic. Cf. Tony Street, “An Outline of Avicenna’s Syllogistic,” *Archiv für Geschichte der Philosophie* 84 (2000), 129-160; Paul Thom, *Medieval Modal Systems: Problems and Concepts* (Aldershot: Ashgate, 2003), 65-80; Id., “Logic and Metaphysics in Avicenna’s Modal Syllogistic,” in *Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and Their Interactions*, ed. S. Rahman, T. Street, and H. Tahiri (Dordrecht: Springer, 2008), 283-295.

¹⁰² This is evidenced by his repeated reference to predecessors.

¹⁰³ Avicenna’s first division of what can be included in the definition of the predicate is: (1) the subject of predication or substrate (*maʿrūd lahu*); (2) the substance-substrate of the subject (*mawdūʿ al-maʿrūd lahu*); (3) the genus of the substance (*jins al-mawdūʿ*). Importantly, (3) raises the question of limiting the genus here to not being more general than the subject-matter of the science at hand. Avicenna suggests that this is

further nuances, even at times calling on the *Metaphysics*.¹⁰⁴ He ultimately seems to whittle it down to the following: “These [predicates] are called *per se* accidents (*a^crād^{an}* *dhātiyyat^{an}*) because they are proper to the essence of a thing (*khāṣṣa bi-dhāt al-shay^ʿ*) or the genus of the essence of the thing.”¹⁰⁵ How his analysis in *Demonstration* of *per se* predication fits into the broader history of the reception of the *Posterior Analytics* awaits a focused study. However, the exact interpretive context that informs Avicenna’s own interpretation of e2-predication will not bear directly on the subsequent discussion, for reasons that will become clear in the following chapters. Here, it should simply be noted that Rāzī’s analysis questions the very distinction between constitutive or internal parts of an essence and its external properties, be they accidental or concomitant attributes. As noted above, Rāzī refuses to take for granted the asymmetry of the dependency relation between constitutive parts and “external” parts. But it is precisely this dependency relation that grounds the necessity and explanatory force of *per se* predications. In the following chapters, details will be added to the above overview of Avicenna’s notion of *lawāzim* and *per se* accidents. In the following paragraphs, however, I quickly present Rāzī’s comments on *per se* predication in the *Ishārāt*, primarily to show that Rāzī is intimately familiar with Avicenna’s corpus and that he attempts to deal with a number of

what Aristotle holds, even if the latter does not make this explicit (*wa-in lam yaḥṣaḥ bihi*). For examples of each category, see *Demonstration*, 126.

¹⁰⁴ He summarizes the previous division and then adds “perhaps it might be said in a more specific sense which is a stronger interpretation (*fī ma^cnā akhaṣṣ wa-ashadd taḥqīq^{an}*), and means by it *that which occurs to a thing (ya^cariḍu) or is predicated of it in itself and in virtue of what it is (limā huwa huwa), not in virtue of something more general and not in virtue of something more specific.*” Avicenna states that the latter sense is used in *Metaphysics*, and he seems to suggest that it is for this reason that it possesses the character of immediacy (*awwaliyya*). It is not clear to me why this is the case. *Demonstration*, 128.

¹⁰⁵ *Demonstration*, 131. Avicenna adds the further qualification that the essence or its genus are not separable of (*lā yakhlū^can*) *per se* predicates in two ways: (1) absolutely (e.g., the three angles of a triangle equal two right angles); (2) such that the subject is never separable of a predicate or its contrary (e.g., number must be either even or odd). In the latter, Avicenna is suggesting that disjunctive predications are included. Notably, this is one interpretation that Barnes offers; see *Posterior Analytics*, 113.

interpretative problems in Avicenna. We will leave some of the details to the subsequent discussion.

In the chapter of the *Ishārāt* on the alternative sense of *dhātī* mentioned above (i.e., alternative specifically to the sense of *dhātī* in the Isagoge), Avicenna discusses how the term might be viewed as inclusive of the specific class of properties that he calls *al-a^crād al-dhātiyya*.¹⁰⁶ Avicenna defines *dhātī* as: “the predicate which is a concomitant of the subject in virtue of the substance of the subject and its essence (*huwa l-mahmūl alladhī yalḥaqu al-mawḍū^c min jawhari l-mawḍū^c wa-māhiyyatihi*).”¹⁰⁷ The definition seems to only apply to *per se* accidents.¹⁰⁸ Rāzī begins his commentary with the definitions of both *e1*-predication and *e2*-predication, which Avicenna provided at the beginning of II.2 of *Demonstration*. It should be noted that Avicenna’s definition of *dhātī* here in the *Ishārāt*, as applied to *e2*-predications, differs from that stated at the beginning of *Demonstration*, II.2. Recall that the definition in *Demonstration* centered on the relations between the definitions of the subject and predicate. With regard to *e2*-predications, the definition of the subject was said to be included in the definition of the predicate. In the *Ishārāt*, however, the definition focuses on the concomitance of the predicate with the substance or essence of the subject. Like Avicenna, Rāzī lists a number of ways in which the subject term can be included in the definition of the predicate in *e2*-predications.¹⁰⁹ And, again, like Avicenna, he reduces the definition to, “Every predicate

¹⁰⁶ He states: *wa-hādihā al-qabīl min al-dhātiyyāt yakhuṣṣu bi-ism l-a^crād al-dhātiyya*”.

¹⁰⁷ *Sharḥ al-Ishārāt*, I, 75.

¹⁰⁸ This is indicated by his stating subsequently that “it is possible to define *dhātī* with a description that combines both senses (*al-wajhayn*) together”, that is, which includes *per se* accidents as well as constitutive parts. This, at least, is how Rāzī reads it.

¹⁰⁹ Rāzī initially lists four ways the subject can be included: (1) as the subject of predication itself (*al-mawḍū^c*); (2) as the substrate of the predicate (*ma^crūd al-mawḍū^c*); (3) the genus of the substrate of the subject (*jins dhālīka l-ma^crūd*); and (4) the subject of the genus of the substrate (*mawḍū^c jins al-ma^crūd*). The last I have not found in Avicenna though it may have been added for completeness. Examples of each

that includes in its definition either the subject (*al-mawḍūʿ*) or its constitutive parts (*al-muqawwimāt*), as we have enumerated, is called a *per se* accident (*ʿaraḍ dhātī*) in the *Book of Demonstration*.¹¹⁰ Avicenna’s definition above parallels Rāzī’s and, indeed, a very similar phrasing can be found in II.2 of *Demonstration*: “Every demonstrative predicate is either included in the definition of the subject or the subject and what constitutes it (*mā yuqawwimuhu*) is included in the definition of it [i.e., the predicate].”¹¹¹ (Of course, Avicenna’s definition here includes *el*-predicates.) Rāzī, however, mentions a more specific sense of *per se* accident that Avicenna points to in *Demonstration*. In this narrower sense, *per se* accident excludes any class whose extension is broader than that of the essence of the subject.¹¹² That is, in this sense, the genus of the subject, or its substrate, is excluded. Rāzī clarifies that this specific sense is what Avicenna intends in the *Ishārāt*, a point which seems to accord with Avicenna’s definition, as stated above. We shall return to the claim shortly.

Rāzī moves on to clarify that Avicenna’s definition, that the predicate is a concomitant of the subject in virtue of its substance (*jawhar*) or essence, does not exclude properties that entail intermediary properties that are causes between it and the essence, with the condition that those properties are co-extensive with the essence. The example

are: (1) nose in the definition of snub-nosed (i.e., in “The nose is snub-nosed”); (2) “White is that which captures sight (*mufarriq li-l-baṣar*)”, where the subject is “white” and its substrate is “body”, which is part of the definition of the subject (presumably since it is the body that acts on sight); (3) “The triangle has a ninety-degree angle”, where the subject is triangle and its genus is “plane” which is included in the definition of being ninety degrees; (4) the example Rāzī provides is somewhat obscure: predicating something even of another thing that is even. In any case, (4) is not particularly important to the discussion. It might be noted that Rāzī’s initial division seems to switch Avicenna’s use of *mawḍūʿ* and *maʿrūd*; that is, Rāzī seems to stick to the original meaning of the terms, using the former to mean “subject” and the latter for “substrate”. It may also be noted that Rāzī discusses the domain restriction of the genus to the subject-matter of the science under investigation, as did Avicenna.

¹¹⁰ *Sharḥ al-Ishārāt*, I, 88.

¹¹¹ Avicenna, *Demonstration*, 128.

¹¹² *Sharḥ al-Ishārāt*, I, 89.

he provides here is risibility, whose immediate cause is the capacity for surprise or amazement (*taʿajjub*), which is an intermediate property between risibility and humanity. That is, humanity is the explanatory cause of wonder, which, in turn, is the explanatory cause of risibility. Here, risibility can be predicated *per se* of humanity only because the intermediary cause, wonder, is co-extensive (or counterpredicates) with humanity. Intermediary properties that are more general or specific than the subject are excluded if *e2*-predication is taken in this sense. It can be noted here that Rāzī recognizes that the necessity of the relation in *e2*-predications derives precisely from the relations between constituent properties and concomitant or intermediary properties. As such, he states that *per se* accidents concern properties that are necessarily inseparable from the subject, and not those that are possibly separable. This accords with Avicenna’s discussion in II.2 of *Demonstration* where he rebukes those who include both necessary and non-necessary properties as *per se* accidents.¹¹³ As discussed above, the Aristotelian will in general need necessary premises for demonstrations. Thus, Avicenna states in II.1, “The premises of a demonstration provide knowledge that does not change and it is not *possible* for the object of that knowledge (*maʿlūm dhālika al-ʿilm*) to be in any other way than that by which it is known. So it is also necessary for the premises of a demonstration to not possibly change from the way they are (*ʿan mā huwa ʿalayhi*). This sense [of necessity] is one of the senses which are called ‘necessary’.”¹¹⁴ Notably, the necessity in such premises derives from the fact that the subject term classifies the individuals of a kind necessarily (i.e., it is a *de re* necessity) and this, as was discussed above, is based on the

¹¹³ The examples he quotes them as stating includes the non-necessary property of laughing *in actuality* in contrast to the necessary property of being capable of laughing. See *Demonstration*, 128.

¹¹⁴ Avicenna, *Demonstration*, 120.

role of real definitions.¹¹⁵ As such, essential definitions ground both *e1* and *e2* predications of demonstrations.

Rāzī's discussion does not make clear whether he believes that Avicenna's interpretation of *e2*-predication in the *Ishārāt* diverges from Avicenna's position in *Demonstration* or whether it is primarily a matter of phrasing. However, Rāzī notes the following: "Know that the predecessors (*al-mutaqaddimūn*) used to say that the *per se* accident is that in whose definition the subject is included or [in whose definition] the constitutive parts of the definition is included, such as 'snub-nosed' in relation to 'nose'. And the Shaykh cites this view with this phrasing in the *Shifā'* and some uncritical followers (*muqallida*) of those from later times (*al-muta'akhhirūn*) have followed him on this. But Avicenna in *al-Hikma al-Mashriqiyya* clarifies that that is false (*bāṭil*) because the subject is distinguished in essence and existence from the essence and existence of the accident and so how can it [i.e., the subject] be included in its definition...because of this distinction, he moves away from that phrasing (*tilka al-'ibāra*) to the statement of his in this book that 'It is that which is concomitant of the subject in virtue of its substance.'"¹¹⁶ The part of the *Shifā'* Rāzī refers to is most certainly *Demonstration*. There are several points he raises in his discussion here which we shall return to in the following chapters (e.g., the domain restriction to predicates that

¹¹⁵ In distinguishing the necessity in demonstration from that discussed in the previous book, i.e., the *Prior Analytics* (*Kitāb al-Qiyās*), Avicenna states, "As for in this book, if we say 'Every *a* is *b* necessarily (*bi-ḍarūra*)', we mean that each thing that is described necessarily as *a* is described as *b*; no, rather, [we intend] a meaning broader than this, which is that everything that is described as *a*, as long as it is described as being *a*, is described as *b*, even if the essence does not persist, because the necessary predicates (*al-mahmūlāt al-ḍarūriyyāt*) here are the genera, differentiae and concomitant *per se* accidents (*al-'awāriḍ al-dhātīyya al-lāzima*)." That is, this is the case even if the individuals are not always described as such. As Avicenna clarifies, for example, the individual man loses the differentia, 'rational', when he perishes. Differentiae thus often cease to be, in contrast to genera. For example, some of the genera of the individual man, like 'body', continue to exist after the individual perishes. See *Demonstration*, 122.

¹¹⁶ *Sharḥ al-Ishārāt*, I, 79. Cf. Avicenna, *Manṭiq al-Mashriqiyyīn* (Qum: Maktabat Āyat Allāh al-ʿUzmā al-Marʿashī al-Najafī, 1984), 28.

are co-extensive with the class of the subject of the science). I will not, however, attempt to resolve the interpretive problem in the Avicennan corpus that Rāzī attempts to engage here, specifically whether Avicenna might have changed his views and what the alleged misreading amounts to. As stated, an analysis of Avicenna's precise view in the context of the interpretive tradition of the *Posterior Analytics* will not bear directly on the central concern in the following analysis.¹¹⁷ It seems likely that Avicenna's adjustments to the definition of *per se* accidents focus on specific interpretations of Aristotle's definition in the commentarial tradition of the *Posterior Analytics*, which in his view are erroneous. The misinterpretations, this time in the view of Rāzī *qua* Aristotelian commentator, seem to have persisted among the adherents of Peripatetic philosophy even after Avicenna. As suggested in his phrasing above – i.e., he states that Avicenna “*cites* this view with this phrasing” (*awrada hādha al-kalām bi-hādhihi al-‘ibāra*) – Rāzī does not seem to hold Avicenna to the misreading even in *Demonstration*.¹¹⁸

¹¹⁷ It should be noted, however, that determining Avicenna's precise interpretation is important to understanding how Rāzī read the former. This question will be partly addressed in the following analysis.

¹¹⁸ Avicenna's discussion in *Demonstration*, as discussed above, seems to suggest he is aware of the misreading. Here, the example of “snub-nosed” seems to have been misleading since it suggests that the “nose”, if taken as a substance, is literally *in* the definition of the former. As such, Avicenna states in the *Ishārāt* that “they for instance provide the example of snub-nosed in relation to nose...”, suggesting that he distances himself from the example. In *Demonstration*, he provides the example at the outset, perhaps following the commentarial tradition, but then limits the discussion to examples that take more standard essences as the subject, i.e., ‘equaling two right angles’ to ‘triangle’. Snub-nosed is perhaps less an example than an illustration.

Chapter 1

Noumena versus Phenomena: Rāzī's Epistemological Programme

In the preceding section, we looked at core components of the Aristotelian theory of scientific knowledge and Avicenna's interpretation of specific aspects of that theory. The analysis focused on knowledge of sensible reality because, as we shall see below, Rāzī is particularly concerned with how the Aristotelian theory explains sensible phenomena. I will quickly review a number of points established in the previous section that will bear directly on the analysis in this chapter.

Definitions, we saw, played a central role in the theory of scientific knowledge, and in *Demonstration* Avicenna provided a systematized classification of definitions. His categorization of definitions was of a special overarching kind of definition that is central to the theory of demonstration, which we labeled “informative” or scientific definitions. As opposed to linguistic or nominal definitions, informative definitions played a crucial epistemological function; namely, they were the means to the “acquisition” (*iktisāb*) of the conception of *things* or essences.¹¹⁹ Avicenna thus categorizes definitions, taken as such, according to the “completeness” of their cognitive content. Real definitions (*al-ḥadd al-ḥaqīqī*) occupied the prime place in Avicenna's epistemological hierarchy since, construed in the strict sense, real definitions contain all the essential properties of the object of definition and are thus considered “complete”. The essential properties here are

¹¹⁹ As discussed below, informative definitions do not exclude the role of linguistic or nominal definitions in the theory of scientific knowledge; but nominal or pre-scientific definitions play a supplementary role in the acquisition of real or, more broadly, scientific definitions.

the constitutive parts (*muqawwimāt*) of the essence. Lowest in the epistemological hierarchy were incomplete descriptions, which contain properties proper to the essence but external to its definition. The kind of proof required for scientific knowledge, i.e., demonstrations, rests on real definitions because they supply the “immediate” premises by which necessary scientific deductions can be made. It was noted that the necessity in demonstrations, as set out in the theory of *per se* predication, derives from the necessity of definitional properties, which includes both constitutive parts and “*per se* accidents” (*al-aʿrāḍ al-dhātiyya*).

Scientific definitions thus provide systematic knowledge of the properties that fundamentally characterize extra-mental or extra-linguistic objects. With regard to sensible reality, we saw that Aristotle’s theory of definition considered the definiens of (complex) sensible items as constituting a kind of unity. Sensible complexes, for example, are not simply bundles of observable properties, or even the conjunction of forms. Both Aristotle and Plato sought to ensure that scientific definitions were essential or “natural”. But Aristotle developed a theory of universals and predication that would ensure the unity of the definiens. Indeed, as we will see in more detail in Avicenna, the definiens of a real definition (unlike a nominal definition) ought to preserve the natural unity of complex sensible things. The genus and differentia in a definition were interpreted in such a way as to ensure this unity. More specifically, the genus and differentia identify a set of properties that were “causally” explanatory of a unitary essence of sensible things or a natural kind. As such, “rational”, “risible”, and “animal”, which identify the differentia, proprium and genus respectively of “man”, were viewed as properties that were ordered in terms of their explanatory and causal priority. Thus,

“rational” which divides the genus “animal”, constitutes the species “man”, and causally explains “risible” as a proprium or *per se* accident of “man”. Moreover, the differentia “rational” (in the relevant sense) was a property that applied only to man and only in the genera-line that constitutes the species “man”. In other words, it is not possible for rational to appear in a different genera-line that constitutes something other than man.

Aristotelian scientific definitions as interpreted by Avicenna are not meant to be trivial, as are nominal definitions, or analytic in the Kantian sense. That is, defining an essence is not simply a matter of looking up the linguistic definition of terms or assessing the relations that merely hold between concepts.¹²⁰ Indeed, we have examined how Aristotle was particularly careful in modifying and systematizing the method of division as a means of obtaining the definitions of the essences of sensible composite entities. That is, unlike nominal definitions, real definitions require a systematic approach to universals and properties. In the *Posterior Analytics*, Aristotle views scientific definitions as being sought out following our pre-scientific conceptions of things. Our pre-scientific conception is provided by our everyday use of terms or names. That is, the names given in ordinary language signify sensible objects and serve as a pre-scientific way of distinguishing sensible objects. Obtaining a nominal definition is a trivial matter since it simply requires one to find the meaning assigned to a word in a language. Moreover, knowing the name does not presume knowledge of the essences or even existence of

¹²⁰ This agrees with a number of modern interpretations of Aristotle’s theory of definition. See, for example, Richard Sorabji, “Definitions: Why Necessary and in What Way?”, 208-244; Charles, *Aristotle on Meaning and Essence*; Deslauriers, *Aristotle on Definition*. Kant’s definition of “analytic” is, of course, highly problematic and he seems to change his views. His initial rendering of analytic as the “containment” of concepts in the concept of the subject may be interpreted as being consistent with the Aristotelian view. In any case, Kant’s aim was to separate analytic claims from those that apply primarily to empirical facts or the sensible world, i.e., synthetic claims. Aristotelian scientific definitions are meant to apply to the essences of sensible entities in a manner not given in nominal definitions, as we shall see below.

things. Whether Aristotle in fact views the relation of nominal definitions to scientific definitions in this way is a matter of some dispute. But what will be relevant to our analysis is Avicenna's view. Before turning to Rāzī, I will look briefly at some aspects of Avicenna's discussion of nominal definitions in *Demonstration*.

In I.5 of *Demonstration*, Avicenna discusses the kinds of scientific questions, or objects of inquiry, which Aristotle distinguishes at B.1 of the *Posterior Analytics*. These are: (i) the *what-is-it* (τί ἔστιν); (ii) the *that-it-is* (εἰ ἔστι); (iii) the reason why (τὸ διότι). Avicenna calls these the inquiry (*maṭlab*) of “*mā*”, “*hal*”, and “*limā*”, respectively, and subdivides each into two subtypes.¹²¹ I will focus on the point he makes regarding the *what-is-it* or simply the *what* and, incidentally, the *that-it-is* or *that*. In Avicenna's view, the question of *that* divides into the “simple *that*” (*hal al-basīṭ*) and the “complex *that*” (*hal al-murakkab*); the former is a one-place question about the existence of an object, i.e., “Does X exist?”. “Exist” here is the predicate (*maḥmūl*). In the complex *that*, “exist” or “is” is construed as the copula, so that we have a two-place question, e.g., “Is man an animal?” With regard to the *what*, Avicenna states:

“The inquiry of *what* (*maṭlabu mā*) divides into two: one is that in which the meaning of the name (*maʿnā al-ism*) is sought, such as our asking, “What is the void?” or “What is a phoenix?”. The second is that in which the reality of the essence (*ḥaqīqat al-dhāt*) is sought, such as our asking, “What is motion?” or “What is place?”...so the inquiry of *what* which is in respect of the *name* (*bi-ḥasb al-ism*) precedes all

¹²¹ See the points raised in the introductory remarks regarding the historical background of the scientific questions in Menn & Wisnovsky, “Yahyā Ibn ʿAdī's Essay on the Four Scientific Questions”. Menn and Wisnovsky note that there are two opposing camps in approaching the scientific questions: one reaching back to Kindī and another to Fārābī. Yahyā follows Kindī, while Avicenna seems to be more in agreement with Fārābī.

[other] inquiries (*mutaqaddim^{um} ʿalā kulli maṭlabⁱⁿ*). As for the inquiry of *what* which is in respect to the thing as it exists in itself (*taḥaqquq al-amr fi nafsīhi*), it comes after the inquiry of *that*, because whoever asks, “What is the essence of motion? (*mā dhāt al-ḥaraka*)” or “What is time?” seeks the quiddity (*māhiyya*) of some thing *existent* to him. As for when one asks, “Does motion – or the void or God – exist?”, it is necessary for one to have understood first what these names refer to, because it is possible to know what a name signifies but not know *that* this signified object is existent or non-existent, even if a definition in reality is of the existent...It is necessary to know that the difference between that which is understood by a name in a general manner (*bi-l-jumla*) and that which is understood by a definition in detail (*bi-l-tafṣīl*) is not small, since everyone who is addressed with a name understands to some extent and grasps (*yaqifu ʿalayhi*) that thing which the name signifies if they know the language. However, the definition is only grasped by one practiced (*al-murtād*) in the art of logic. Thus, one of the two [ways of knowing] is [plain] knowing (*maʿrifa*) and the second is [scientific] knowledge (*ʿilm*), just as sense perception is knowing (*maʿrifa*) and the intellect is [scientific] knowledge (*ʿilm*).”¹²²

There are several points raised here that will be addressed below and in later chapters. For example, we will encounter the terms *bi-l-jumla* and *bi-l-tafṣīl* in Chapter 3, where Rāzī employs them in the context of his own notion of nominal definitions. But what this passage makes clear is that, far from being trivial, scientific definitions require special attention and skill. More importantly, Avicenna underscores the point that real definitions

¹²² *Demonstration*, 68-69.

provide a kind of knowledge that goes beyond our ordinary or pre-scientific grasp of things, a notion that Rāzī will find particularly problematic.¹²³

In Book IV, Avicenna revisits the analysis of scientific questions and kinds of definitions. In IV.4, Avicenna divides the kinds of definitions relevant to scientific inquiry into four.¹²⁴ I will focus here on two: the nominal definition and the (non-syllogistic) real definition. The latter type he seems to qualify with the phrase *bi-ḥasb al-dhāt* (“according to the essence”) to distinguish it from real definitions that can be displayed in demonstration (which divide into the two other types of definitions). I will call non-syllogistic real definitions simply real definitions. Significantly, Avicenna states

¹²³ Avicenna here provides the analogy of the relation of sense perception to intellectual knowledge. Aspects of this will be discussed in the subsequent chapter on epistemology. But it can be noted now that the contrast between knowledge given by sense perception and rational or intellectual knowledge is raised in various places in *Demonstration*; see especially III.5 and V.10. The discussion involves the widely disputed points, particularly regarding concept formation, that Aristotle raises in B.19 of *Posterior Analytics*.

¹²⁴ Avicenna’s division of definitions parallels in some important respects M. Deslauriers’ interpretation of Aristotle’s division of definitions in *Posterior Analytics* B.10. Deslauriers argues that Aristotle distinguishes between four kinds of definitions: (1) a nominal definition; (2) an account in the “form” of a demonstration; (3) the conclusion of such a demonstration; (4) an immediate definition. Further, she attempts to show that immediate definitions constitute the basic kind of definition for Aristotle’s theory of demonstration in that they supply the first principles of demonstration. This is because they include the “immediate” explanatory causes of the objects of definition. Indeed, the fundamental difference between immediate definitions and the two kinds she labels “syllogistic definitions”, i.e., (2) and (3), lies in that fact that the cause of the object of definition in immediate definitions is not *other than* itself, but rather is its formal cause. As for syllogistic definitions, the cause of the object of definition, which is displayed in the demonstration, is other than itself. A corollary of this is that the objects of immediate definitions are simple while the objects of syllogistic definitions are complex. Importantly, simplicity does not require the definiendum to be partless, but they require unity in the ontological sense discussed above. In IV.4 of *Demonstration*, which loosely corresponds to the themes of *Post. An.* 2.10, Avicenna makes a four-fold division of definitions which divide into: (a) nominal definitions; (b) (real) definitions (*bi-ḥasb al-dhāt*); (c) definitions that provide the cause of the existence of the definiendum (serving as the middle term or principle of a demonstration); (d) definitions that are conclusions of demonstrations. Avicenna’s type (b) seems to correspond to Deslauriers’s immediate definitions, i.e., type (4), specifically in that it is clearly distinguished from syllogistic definitions (namely c and d) and paired with nominal definitions. Avicenna later states that Aristotle does not mention (c) but only mentions the complete definition that is the combination of the principle and conclusion of a demonstration, which seems to correspond better to Deslauriers’s (2). However, Avicenna states here that the fourth should be complete definitions of those things that have no causes for their own existence. The kind described here seems to correspond to (b) and it is not clear whether Avicenna means to say that this is Aristotle’s fourth kind, which would nicely correspond to Deslauriers’s immediate definition. But then what to do with (b)? Avicenna’s discussion is quite complex and diverges significantly from Deslauriers’s. My comparison should not suggest that they are in fact similar systems. I have simply referred to Deslauriers’s work because unfortunately no study has been done on Avicenna’s theory and the comparison, I felt, would provide some context.

that nominal definitions are only definitions in a metaphorical sense (*ḥadd majāzī*) and that real definitions (construed broadly) are in fact only the three other kinds. He notes that nominal definitions do not signify the existence of the object of definition nor its cause. If they do, they only do so accidentally.

Avicenna underscores a distinction here between the natures of the objects of the two kinds of definitions. The objects of nominal definitions are not real or “natural” unities; rather, they are unities only insofar as they are conjunctions of parts held together by ties or connections (*muttaṣil al-ajzāʾ bi-arbiṭa al-jāmiʿa*). That is, they are not unities “in essence” or “in reality” (*bi-l-ḥaqīqa*).¹²⁵ The example he provides is the unity of Homer’s poem or a book. We will return to the examples shortly. The objects of real definitions, on the other hand, are one in reality and are natural unities (*wāḥid bi-l-ḥaqīqa bi-l-waḥda al-ṭabīʿiyya*); indeed he calls the unity required in a real definition “substantial natural unity” (*ittiḥād ṭabīʿī jawharī*). Although objects of nominal definitions might exhibit a certain unity (even a fictional unity in the imagination, like, “flying man”), in real definitions “the parts of [the definition] become one thing in the soul signifying one thing in existence” (*ajzāʾahu yaṣīru shayʿ^{an} wāḥid^{an} fī al-naḥs yadullu ʿalā shayʿⁱⁿ wāḥidⁱⁿ fī al-wujūd*).¹²⁶ Given our discussion in the previous section of the nature of the parts of the definition, and the importance placed on unity by Aristotle, Avicenna’s distinctions do not come as a surprise. In this chapter, we will see that Rāzī questions the nature of the metaphysical unity of the composites that are the objects of real definitions, particularly as they apply to complex sensible entities. In Chapter 2, I

¹²⁵ Avicenna, *Demonstration*, 289.

¹²⁶ Ibid.

will examine how Rāzī's notion of structured universals attempts to account for the phenomenal rather than metaphysical unity of composite universals.

Before turning to Rāzī, a few brief points on Avicenna's notion of nominal definitions are in order. Avicenna provides the example of Homer's poem to illustrate what might be called "nominal unity". He refers to a previous discussion in IV.3 where he argues that definitions are distinct from syllogistic deductions. He adds there that the distinction between real definitions and nominal definitions (*al-qawl al-mu^carrif li-māhiyyat al-ism*) is even more obvious since the latter is simply a matter of stating, "I mean by [this term] such and such," which cannot be a matter of dispute.¹²⁷ He argues that if nominal definitions were in fact definitions of some kind, then all of our speech and discourse would be definitions. One could simply assign a name to any composite utterance and it would, Avicenna asserts, be a definition. Thus, Homer's *Iliad* (*Īlyās*) or the name of a village would be a definition, since they are a plurality of parts signified by a term. Avicenna states that what nominal definitions do here is simply expand or provide details of the plurality of parts (*tafṣīl al-jumla*). A name, or nominal definition, signifies a plurality of parts and not a unitary essence and so knowledge of the definiendum is simply a matter of detailed or precise knowledge of its parts. Significantly, Avicenna uses a phrase to describe nominal definitions that will turn up in Rāzī, namely, "making precise what the name signifies" (*tafṣīlu mā dalla ^calayhi al-ism*). Rāzī normally adds *bi-l-jumla* giving us: "making precise what the name signifies in a general manner". However, Rāzī's notion of nominal definition will differ from Avicenna's. That is, Avicenna does not seem to fundamentally distinguish between a lexical and nominal

¹²⁷ Avicenna, *Demonstration*, 283.

definition. As the above suggests, nominal definitions are, for Avicenna, entirely trivial, as they are simply a matter of convention, i.e., one cannot dispute the nominal definition, as he states. Rāzī, as we will see in this chapter, wants to distinguish nominal definitions from lexical definitions. In chapter 3, drawing on the previous analysis of Rāzī's epistemic and logical programme, I will attempt to sort out how Rāzī might more precisely view nominal definitions.¹²⁸

In the logic of the *Mulakhkhaṣ*, Rāzī devotes a chapter to the “acquisition” of the five predicables (entitled *fī kayfiyyat iqtināṣ al-khamsa*), which focuses specifically on the means to acquiring the parts of a definition.¹²⁹ The chapter is found at the end of a larger section entitled, “On the manner of acquiring conceptions” (*fī kayfiyyat iqtināṣ al-taṣawwūrāt*). The preceding chapters of the section are devoted to the analysis of various kinds of universals and predicables (i.e., genus, differentia, species, proprium, and accident). As shown in the following analysis, his discussion of predicables and universals in this section departs in many ways from the approach taken in the Isagoge tradition. The chapter sums up a number of points raised throughout the preceding analysis and begins with the following:

T 1

Investigation (*baḥṭh*) applies either to the genus of **named things** (*musammayāt*) and their differentia or to the genus of **quiddities that exist in themselves** (*al-māhiyyāt al-thābita fī anfusiḥā*) and their differentia. The first is extremely simple, because if a person posits (*waḍaʿa*) a name for a collection (*jumla*) of things that he conceives, the complete

¹²⁸ Cf. Rāzī's commentary on Avicenna's discussion of nominal and real definitions in *Sharḥ al-Ishārāt*, I, 24-30.

¹²⁹ The chapter is found in a larger section entitled, “On the manner of acquiring conceptions” (*fī kayfiyyat iqtināṣ al-taṣawwūrāt*).

distinguishing factor (*tamām al-qadar al-mumayyiz*) is the differentia and the complete common factor (*tamām al-qadar al-mushtarak*) between the conceived things is the genus.

As for the latter [kind of genus], it is extremely difficult, because if [for example] our sight locates a particular existent, we know that, as a whole, there is a self-subsisting entity (*dhāt^{an} qā'im^{an} bi-nafsihā*), and we know that there are attributes (*ṣifāt*) that obtain in that entity. But if we want to know of [that] entity what [kind of] things it is (*ayyu shay'ⁱⁿ hiya*), and the attributes (*ṣifāt*) what [kind of] things they are and how many they are, knowledge of that becomes very difficult for us. Moreover, if we know two things that share in certain aspects (*min ba'ḍi l-wujūh*) and differ in [some] other aspect (*min wajhⁱⁿ ākhara*), it is not possible to know of the complete common factor (*tamām al-qadar al-mushtarak*) what [kind of] thing it is and how it is, and of the complete differentiating factor (*tamām al-qadar al-mumayyiz*) what [kind of] thing it is and how it is. If that is difficult, then acquiring differentia and genus in the manner of verification (*al-tahqīq*) is of utmost difficulty.¹³⁰

Rāzī clearly means to raise in this passage an epistemological concern that relates to the “acquisition” of the genus and differentia in Aristotelian definitions. A precise understanding of how Rāzī frames the problem will be made clearer after discussing Rāzī’s epistemological programme. But a few central points can be noted. By “in the manner of *tahqīq*”, we will see that Rāzī intends to mean the acquisition of concepts through scientific or real definitions. And in Chapter 3, definitions in the manner of *tahqīq* will be contrasted with nominal definitions.

¹³⁰ Fakhr al-Dīn al-Rāzī, *Manṭiq al-Mulakhkhaṣ*, ed. A. F. Qarāmalikī & A. Aṣgharīnizhād (Tehran: Dānīshgāh-e Imām Ṣādiq, 1381 [2002 or 2003]), 89-90 (hereon referred to as *Manṭiq al-Mulakhkhaṣ*). *Mulakhkhaṣ*, Berlin Staatsbibliothek Ms. Or. Oct. 629, fol. 9a (hereon cited as *Mulakhkhaṣ*). It should be noted that the Berlin manuscript contains many errors and is generally unreliable if used alone.

Regardless of what background assumptions may lurk here, the passage raises some important questions *prima facie*, particularly in the context of our previous discussion of the Aristotelian definitions. It will be recalled that, in the Aristotelian view, not only is knowledge of the essence of a thing (i.e., the *what-is-it*) obtained through scientific definitions, but definitions themselves are obtained by following a particular method with guiding rules. Avicenna calls the former the acquisition (*al-iktisāb*) of a conception (*taṣawwur*) by means of real definitions and the latter the acquisition of a definition, which occurs by means of the proper method of division.¹³¹ In several works, Rāzī claims that conceptions are *not* acquired whatsoever. Indeed, this is a position he states as a slogan in a number of his more accessible works and a position that he became uniquely identified with in the later tradition.¹³² The following analysis shows what philosophically motivates Rāzī's position. In **T1**, Rāzī seems to raise an overarching question regarding essential knowledge or the obtaining (*iqtinās*) of the essential properties of things or kinds that are the objects of definition. Otherwise put, Rāzī is concerned with a "meta-definitional" question related to acquiring definitions or, more accurately, the definiens, rather than simply addressing definition as a statement of properties. Although the section is entitled "On the manner in which the five predicables are acquired", Rāzī is specifically interested in the methods of acquiring definitions as evidenced by the fact that subsequent to the above passage he states, "Of the considered

¹³¹ Avicenna for example entitles his chapter on the proper method of division, "On indicating that the acquisition of a [real] definition is by means of division (*tarkīb*).” See *Demonstration*, 306.

¹³² The following are some of his works that state this point explicitly: Fakhr al-Dīn al-Rāzī, *Muḥaṣṣal Afkār al-Mutaqaddimīn wa-l-Mut’akḥḥirīn min al-‘Ulamā’ wa-l-Ḥukamā’ wa-l-Mutakallimīn*, ed. Ṭ. R. Sa’d (Cairo: Maktabat al-Kulliyāt al-Azhariyya, n.d.), 16-18; *ibid.*, *al-Risāla al-Kamāliyya fī al-Ḥaqā’iq al-Ilāhiyya*, ed. °A. Muḥyuddīn (Beirut: Dār al-Kutub al-°Ilmiyya, 2002), 19-20; Fakhr al-Dīn al-Rāzī, *Sharḥ °Uyūn al-Ḥikma*, ed. A. Ḥ. A. al-Saqqa (Cairo: Maktabat al-Anjlū al-Miṣriyya, 1986), I, 44-45 (hereon *Sharḥ al-°Uyūn*); Ibn Abī al-Ḥaddād, *Sharḥ al-Āyāt al-Bayyināt* (Beirut: Dār Ṣādir, 1996), 115 (this includes Rāzī’s text on logic entitled *al-Āyāt al-Bayyināt*).

methods (*al-ṭuruq al-muʿtabara*) of [acquiring] it [i.e., essential conceptions] is [the method of] division (*al-qisma*).”¹³³ The “in it” refers to the acquisition of the differentia and genus as parts of a definition.¹³⁴ He provides a brief and general overview of division taken generally (i.e., not only the proper kind prescribed by the Aristotelians), at the end of which he states, “its details are for you [to investigate], but in general division is a method of analyzing (*tahlīl*) composites into simples and once the simples obtain, the generic part (*al-juzʿ al-jinsī*) is distinguished from the differentiating [part] (*al-faṣlī*), and is that not the simplest thing (*a-yakūnu dhālika aṣḥal*)?” As Rāzī suggests, the method of division affords knowledge of the “simply” or trivially acquired universals, i.e., the “differentiating” universals rather than the essential ones. Given his bleak outlook on the possibility of grasping essences of a thing, which he described as being of “utmost difficulty”, Rāzī is perhaps recommending a more deflationary view of division, in which case he would be speaking specifically to the Aristotelians. Indeed, one might speculate that this is a jab at the detailed elaboration of rules for the “proper” method of division, which was advanced by the Aristotelians, as was discussed above. And as we have suggested in the previous section, Rāzī seems to have closely read *Demonstration*, so he would have been familiar with Avicenna’s extensive discussions of the method.¹³⁵

Still, this is largely speculative. What is certain is that Rāzī doubts that real definitions, or informative definitions in general, can play any major role in philosophical discourse. As we shall see, this strong doubt will be reinforced and phrased in logical, or

¹³³ *Manṭiq al-Mulakhkhaṣ*, 90.

¹³⁴ The title is somewhat misleading as Rāzī is only interested in the section on the proper parts of real definitions. But this will make more sense when we see, in Chapter 3, that, to Rāzī, if the genus and differentia are not real, but only nominal, then the Porphyrian division breaks down.

¹³⁵ Avicenna devotes quite a bit of space in *Demonstration* (about three chapters, mainly chapters 2, 3 and 5 of Book IV) arguing against improper notions of division and elaborating the proper rules.

“analytic” terms as discussed above, particularly in the context of his systematic arguments against “real definitions” (*al-ḥadd al-ḥaqīqī*) in Chapter 3 of this dissertation. It should be noted here, however, that in **T1** (and implicitly in the preceding quote), Rāzī makes an important contrast between simply “distinguishing” objects of definitions and knowing fundamentally what *kind* of things they are. Recall that Avicenna, in his classification, was emphatic that real definitions do not simply distinguish items but include all the constitutive properties of an essence. Rāzī will argue that the most we can expect from definitions is differentiation (*imtiyāz* or *tamyīz*), which does not require the assessment of the nature or completeness of our knowledge of essences. Rāzī will, in fact, argue, in a number of places, that there should remain no distinction between a definition and a description. That is, he believes the entire categorization provided in *Demonstration* is problematic.

The fundamental distinction in **T1** is that made between the kinds of “things” that are being investigated: (i) named things and (ii) (real) quiddities in themselves. Here, I turn to a text of Rāzī that aptly summarizes a number of points that Rāzī sets out in the logic of the *Mulakhkhaṣ* and other works. But before assessing the details of Rāzī’s text, I will anticipate the analysis in this chapter and provide an overview of Rāzī’s epistemological programme. I will, however, have to gloss over a number of details which will be clarified subsequently in this chapter and the next. The core intuition behind Rāzī’s epistemic programme, maintained in all the works assessed here, can be illustrated with the cases of “heat” and “man”. For the sake of clarity, I shall follow these conventions (though they will be omitted where the terminology is clear):

1. ‘heat’ refers to the word, or the *linguistic type*, that refers to heat.

2. {heat} will refer to the concept signified by 'heat'.
3. <heat> will refer to the extra-mental object or instantiation of {heat}.

'Heat' for Rāzī signifies a simple concept, {heat}, which is the object of one of the five senses and it is thus acquired without definition. <heat> is some entity or event that gives rise to the sensation that we refer to by 'heat'; that is, it is the concept picked out by our general terms used in ordinary or pre-scientific language. Rāzī asserts, as a foundational principle, that any attempt to further define heat must be considered to take as its object something other than {heat}, which is the primary referent of our everyday use of 'heat'. This rule I will refer to as the *Indefinability of Sensible Terms*, which he will call a *qānūn* ("law"). Included in this rule are all the direct objects of sense perception or *sensibilia* (which I will simply refer to as *sensibles*). Given this rule, a scientific or essential definition of 'heat' cannot provide more accurate or deeper knowledge of the nature of the experience-based heat that we refer to when we use the term 'heat' pre-scientifically.

Moreover, Rāzī distinguishes between sensible terms and simple concepts, on the one hand, and complex quiddities, on the other. The former are the only quiddities that are truly simple, which means not only that they are indefinable and immediately known, but also that they are the foundational and most complete kinds of concepts that we have access to with regard to sensible reality. 'Man', for example, signifies a composite concept that picks out concrete objects made up of sensible simples (i.e., colors, shapes, smells and so forth) plus, perhaps, some noumenal properties that constitute the essential nature of the composite sensible item or kind.¹³⁶ Rāzī here distinguishes between two

¹³⁶ This is a simplification, as we shall see. There are a number of complications including Rāzī's definition of structured universals, which includes a kind of non-sensible property, called the structuring property, which will be discussed in the subsequent chapter. Moreover, in Chapter 6, I will examine how, from a

ways of taking our concept of the composite object <man>: (1) as referring to a thing primarily composed of sensible qualities (i.e., experience-based or phenomenal {man}); or (2) as referring to a composite essence or substance definable by essential parts (i.e., the natural kind or essential {man}). This corresponds roughly to the distinction Rāzī made in **T1** between the objects of definition, viz., between named things and real quiddities. Knowledge of (1) he will call accidental and incomplete (*al-‘ilm al-‘araḍī al-nāqis*) which is contrasted with knowledge of (2) which is complete essential knowledge (*al-‘ilm al-ḥaqīqī al-tāmm*). As such, the definition of {man} either concerns the linguistic term signifying (1) the sense-based or phenomenal {man} or (2) the essential-kind {man}. Definitions of (2) is what Rāzī means in **T1** when he states that the genus and differentia are obtained “in the manner of *taḥqīq*.” In fact, Rāzī’s theory of complex universals, which we have called *structured universals*, will complicate the naïve empiricist view that has been outlined here.

It is important to emphasize that Rāzī will assess from a number of angles the question of the possibility of obtaining or asserting real or scientific definitions. In this chapter, we examine the “empiricist” epistemological programme that he outlines specifically in logic, and which aims to problematize knowledge of noumenal properties. Here, Rāzī can be viewed as tackling a meta-definitional problem (or the semantics of definitions). In Chapter 3 of this dissertation, I will examine Rāzī’s arguments against real definitions that fall into his analytic analysis. In Chapter 3, in contrast to the meta-definitional analysis here, we will see that Rāzī examines definitions in an internal manner, by presuming that the semantics of the system is sorted out (or, at least, that the

psychological perspective, complex quiddities are not mental forms but mind-dependent constructions of a certain kind.

epistemological assumptions grounding informative definitions have been clarified). As such, his analytic argument does not assess scientific definitions as a method that involves a number of meta-definitional epistemological assumptions. Rather, Rāzī assesses definitions as assertions or statements of parts and properties of a definiendum. He will attempt to show that, in contrast to the view of scientific demonstrations, there are no non-circular and non-deductive means of viewing such definitions. He concludes there that no distinction can be maintained between definitions and descriptions and that only nominal definitions ought to be employed in logic. It is important to note that, in Part I, we are focusing on the epistemological problems relevant to logic. His broader systematic theory of knowledge, at the core of which lies the logical programme, involves a systematic analysis of various philosophical problems, such as the status of (abstract) mental forms, form-matter analysis and optical theory. As already stated, Chapter 5 will assess the ontological questions and Chapter 6 the psychological. However, as we will see, he will point towards these problems in various places in logic itself, but he will defer the full discussion to philosophy proper, which he refers to as *al-ḥikma*.

The epistemological programme, then, which will be discussed below, is one that Rāzī outlines specifically in logic to address the epistemological assumptions that he believes encroaches on the logical discussion. To that end, Rāzī sets out a set of rules that he believes needs to be observed in logic. Our primary focus will be on the *Mulakhkhaṣ* and the *Nihāya*, where the rules are set forth in various places of his analysis of universals and definitions. We turn first, however, to a summary of the major points made in the *Mulakhkhaṣ* and *Nihāya*, which is found in Rāzī's commentary on the introductory part to the *Organon* section of Avicenna's *ʿUyūn al-Ḥikma*. Rāzī's analysis in his *Sharḥ al-*

^c*Uyūn* is a commentary on the following lemma from Avicenna's text: "The universal predicated in the answer to 'What is it?' is that which signifies the complete essence of that whose quiddity is asked about (*kamāl ḥaqīqati mā yus'alu 'an māhiyyatihi*), as in saying, in response to 'What is a man?', 'It is a living rational mortal [thing].'"¹³⁷ As we shall see, Rāzī usually presents his rules in the *Mulakhkhaṣ* and the *Nihāya* as cautionary remarks. Here he also begins with a warning:

T 2

[I have inserted lowercase Greek letters to identify segments in the passages I shall refer to in the subsequent discussion.]

The First Problem (al-Mas'ala al-Ūlā):

Know that before delving into the problem [i.e., "What is it?"], we shall propose [some] preliminary points (*nuqaddimu muqaddimat^{an}*) that are required for a clarification of the problem. The [points] are our saying [the following]:

[α] A thing may be known by its essence (*bi-dhātihī*), or it may be known, not by its essence, but by its concomitants (*tawābi'*) and attributes (*ṣifāt*). As for the first, an example would be for us to see a color with our sight, in which case we perceive the quiddity (*māhiyya*) of the color inasmuch as it is (*min ḥaythu annahā hiya*). This knowledge is knowledge of a thing with regard to a specific reality and a particular quiddity. And it is the most perfect degree of knowledge of a thing.

[β] As for the second [i.e., knowledge of a thing's attributes], it is [for example] when a proof shows that the world is originated [i.e., has a beginning], and that every originated thing has an originator. Here, the intellect judges that the world has an originator, but it does not know what the quiddity (*māhiyya*) of that originator is, and what its reality is. So [what] is known of this originator is that

¹³⁷ Rāzī, *Sharḥ al-^cUyūn*, 1, 66.

it is an originator. As for what it [i.e., the originator] is (*mā huwa*) in its specified essence (*fī dhātihi al-makhṣūṣa*), this is not known. This [type of] knowledge, in terms of [its] being knowledge of a thing, is not with respect to the specific essence [of the object of knowledge], but rather it is with respect to it having some attribute or accident.

[γ] If you have understood these introductory remarks, we state: What is asked about by “What is it?” is either simple or composite.

[δ] If it is simple, then either [the question] is seeking complete essential knowledge [*al-‘ilm al-ḥaqīqī al-tāmm*] or knowledge that is accidental and incomplete [*al-‘ilm al-‘araḍī al-nāqis*].

If the former, it is [δ¹] one of those things that a person perceives with one of the five senses, or if not thus [i.e., perceived through one of the senses], he finds [δ²] some reality in himself, like knowledge of pain, taste, desire, anger and other psychological states (*al-aḥwāl al-naḥsāniyya*). Or [δ³] the thing that is asked about is external to things perceived by the senses and things perceived by the self.

[ε] As for the first category [i.e., δ¹], which is [when] what is asked about by “What is it?” [applies] to a simple quiddity perceived by one of the senses. The answer [to the question] is to point to that quality (*kayfiyya*). For example, if it is asked, “What is heat?”, the answer to this question is to state that “It is that thing which is perceived by the sense of touch upon touching a body of fire.” The answer is similar [when] one states, “What is whiteness?”, namely, [to respond] that “It is that which is perceived by the sense of sight upon looking at colors”.

Anyone who diverges from this rule (*qānūn*) in defining (*ta‘rīf*) these qualities is mistaken.

Now to the second category [i.e., δ²], which is [when] what is asked about [applies to] a simple quiddity not perceived by any of the five senses, but is perceived by the self in a necessary manner, for example, pain, taste, joy, and

sadness. If one asks, “What is joy?”, the answer is to say, “It is the thing which you find in yourself upon such-and-such a state.”

Now to the third [i.e., δ^3], which is [when] what is asked about by “What is it?” [applies to] a simple quiddity that is not perceived by the senses nor by the self. For this [kind of quiddity], **there is no way to define it (*ta^crīf*) that gives essential knowledge (*ma^crifa ḥaqīqiyya*), because we know necessarily after induction and testing (*al-istiqrā^ʿ wa-l-ikhtibār*) that it is not possible to have knowledge of that which falls outside of the first two categories in terms of real essential knowledge with respect to its particular essence. Rather, [only] a definition of it that gives incomplete accidental knowledge (*ma^crifa nāqiṣa ^caraḍiyya*) may be possible.**¹³⁸

[ζ] This is the [same] discussion (*kalām*) [one ought to provide] if what is asked about [by “What is it?”] is a composite. The response is:

What is asked about by “What is it?” is a composite quiddity (*māhiyya murakkaba*) either in the way (*bi-ṭarīq*) that complete essential knowledge is given or in the way that incomplete accidental knowledge is given. If the first, the method of defining it is only by mentioning all the simples that are the [constitutive] parts of that quiddity, since we have indicated that there is no meaning to that quiddity except the collection (*majmū^c*) of those parts. Then, if that is so, it is not possible to define that quiddity without all of the parts. This divides further into two, since that which is stated in the answer [to “What is it?”] is either [ζ¹] a singular term (*lafẓ mufrad*) that signifies through correspondence [*bi-l-muṭābaqa*] to the whole of those parts or [ζ²] many terms each of which signify a part of those parts.

As for the first [ζ¹], defining it is through a name (*ta^crīfuhu bi-l-ism*), the gist of which amounts to substituting a term for a clearer term in order for the questioner to understand, as when one asks, “What is man (*bashar*)?” and it is

¹³⁸ *Sharḥ al-^cUyūn*, I, 67-68.

said, “It is human (*al-insān*).” This type is of little benefit and that benefit is only for language instruction and for providing another name synonymous to the first. As for the second [ζ^2], it is defining through the definition (*ta^crīf bi-l-ḥadd*). **For this reason, it is said that [technical] definition (*ḥadd*) has no reality but making precise what a name signifies in a general way (*tafṣīlu mā dalla ‘alayhi al-ism bi-l-ijmāl*). This is [the case] if what is asked of by “What is it?” is a composite quiddity and the response to it is by mentioning the method that provides complete essential knowledge.”**¹³⁹

In this passage, we find, once again, Rāzī expressing worries about our knowledge of the essences of things, as he did in **T1**. However, in **T2**, he makes a number of distinctions: essential versus accidental knowledge, simple versus complex quiddities, and linguistic versus some other kind of definition that remains unexplained. His general discussion from α to β leads to the primary distinction in the passage at γ between the various kinds of simple and complex objects of knowledge. Importantly, the distinction is made in response to the question, “What is it?”, which, as we saw above, is one of the scientific questions that Avicenna discusses in *Demonstration*, and which relates to nominal and real definitions. Rāzī’s distinction between “complete essential knowledge” and “incomplete accidental knowledge” seems to be addressing the Aristotelian theory of scientific knowledge, though how exactly his discussion applies to real definitions used in demonstrative science remains obscure in this passage. Our discussion of his analysis in the *Mulakhkhaṣ* and *Nihāya* will clarify a number of points that are assumed in this summary, particularly his claim at ζ^2 that technical definitions ought to be construed as “making precise what a name signifies in a general way”, a phrase that we saw Avicenna

¹³⁹ Ibid., 67-69.

used to describe nominal definitions in *Demonstration*.¹⁴⁰ However, Avicenna had claimed there that knowledge provided by nominal definitions does not provide knowledge of the essences of things in any way whatsoever, much less complete essential knowledge. Complete essential knowledge could only be obtained through real scientific definitions. Thus, either Rāzī has misinterpreted the relation of definitions to the scientific questions, or he is making a new claim. His statement at ζ², “For this reason, it is said that *ḥadd* has no reality but...”, suggests that he is making a new claim, which might be interpreted as stating that definitions in the technical sense, or those that are to be used in science, have “no reality” except in providing the nominal definiens of a complex quiddity. That is, the only complete knowledge that can be acquired of composite quiddities is that which is given by the nominal definition and not by real definitions. This is precisely what he will say in the *Nihāya* and the *Mulakhkhaṣ*, as we will see below. But in the *Nihāya* and *Mulakhkhaṣ* he will argue that no distinction can be maintained between definitions and descriptions.

Though my primary aim is to set out Rāzī’s views as set out in the *Mulakhkhaṣ*, *Nihāya*, *Mabāḥith* and *Sharḥ al-Ishārāt*, the following analysis will show that the account in *Sharḥ al-‘Uyūn* follows the same epistemological rules set out in the former set of works. In particular, we will see that Rāzī’s statement at ζ that “we have indicated that there is no meaning to that quiddity except the collection (*majmū‘*) of those parts” presumes his own analysis of quiddities and their parts, in particular his notion of structured universals. The *Mulakhkhaṣ* and the *Nihāya*, however, will explain very

¹⁴⁰ Rāzī, *Mulakhkhaṣ*, 106, 107-108, 110.

precisely what he means by “collection of parts”.¹⁴¹ However, to understand Rāzī’s view of universals of complex sensible objects one needs to better understand his view of simples. The above account makes a number of foundational distinctions regarding simples and sense perception that will be central to his larger epistemic programme, distinctions that were made and elaborated in the earlier works, as we shall see. As such, this chapter will focus on simples and will not fully tackle the problem of complexes. Before moving on, it should be noted that Rāzī does distinguish in **T2** between (ζ^1) lexical definitions and (ζ^2) technical definitions, a point which will be significant to our discussion of Rāzī’s view of definitions below.

Returning to our analysis of the text of **T2**, Rāzī, as stated, sets out a number of basic distinctions, including simples/composites, essential/accidental knowledge, and lexical/technical definitions (though, as stated, this last distinction, particularly what constitutes “technical definitions”, remains obscure). His preliminary remarks from α to β take the distinction between sense perception and proof as an example of, or analogy to, the distinction between essential and accidental knowledge. There is also a distinction, implicit though crucial, in the account between definability and indefinability. It is a good idea to clarify Rāzī’s terminology first, since his use of terms here is consistent with his usage in other works. Rāzī uses *ta^crīf* to apply to both technically definable things (objects of *ḥadd*) as well as those that are only “definable” by pointing towards a thing or providing some kind of statement that applies directly to the sensible experience or

¹⁴¹ As we will see, collection is a rather bad translation for *majmū^c*. That is, Rāzī does not view a structured universal as simply an aggregate of parts but as a kind of related whole forming a certain symmetrical dependency relation between parts, properties and wholes.

psychological state identifying the object. Rāzī underscores the point that the defining by pointing towards or providing statements of observation is not informative in any extra-linguistic way. Thus, *taʿrīf* is a general term that does not necessarily signify a definition or, at least, a *technical* definition. *Hadd*, however, is used here to refer specifically to technical definitions, which he seems to view here as a particular kind of *taʿrīf*.

Returning to the question of definability, the categories of objects of knowledge are divided here into: (δ^1) simple objects of sense perception; (δ^2) simple objects of internal perception or psychological states; (δ^3) simple objects not available to sense perception; (ζ) composite objects. Crucially, composite things are not described as being (direct) objects of sense perception. Here, then, composites seem to be similar to δ^3 in that they are not directly apprehended by the senses. We will return to composites after discussing the nature of simples.

At the end of ϵ , Rāzī states rather dramatically regarding δ^1 and δ^2 that “anyone who diverges from this rule (*qānūn*) in defining (*taʿrīf*) these qualities is mistaken”. We have referred to this rule as the Indefinability of Sensible Terms and, as we will see, the warning he issues here is construed in earlier works as primarily addressing the views of the *falāsifa*. In the section devoted to definitions in the *Mulakhkhaṣ*, which follows **T1** quoted above, Rāzī begins by discussing kinds of definitions, and suggests, in a manner consistent with **T1**, that real definitions are unattainable. In the following chapters, we shall examine this section in detail. But it can be noted here that Rāzī provides a division of simple and composite quiddities with regard to definition.¹⁴² He concludes his division

¹⁴² The division there is, as stated, analytic and less concerned with epistemological matters: (1) composites that do not compose other composites and so can be defined but not defined with (i.e., cannot be a part of

of quiddities by stating that this shows that, with regard to simples, we either have (i) no conception (*taṣawwur*) of simples or we have (ii) a conception of simples in a manner that does not require acquisition. The following section is devoted specifically to the question of whether conception of simples is acquired (*iktisāb*). The term *iktisāb*, it will be recalled, is what Avicenna uses in *Demonstration* for conceptions that are acquired by means of real definitions. In this section, Rāzī lists the following examples of simples: colors, light, noises, tastes, smells, tangible qualities, as well as psychological states like knowledge, power, will, desire, pain, pleasure, happiness and desire. It can be noted that Rāzī's examples of sensible simples correspond to δ^1 and δ^2 in *Sharḥ al-ʿUyūn* and his distinction in the previous section, i.e., (i) and (ii), corresponds to δ^3 and δ^1/δ^2 , respectively. However, he expands here by stating that it is not possible to provide a definition (*taʿrīf*) of these except by clarifying them through *linguistic expressions* (*tabdīl lafẓⁱⁿ bi-lafẓⁱⁿ awḍaḥa minhu tafhīm^{an} li-l-sāʾil*), because “there is nothing in existence better known than internal states (*wijdāniyyāt*) and sensibles (*maḥsūsāt*) for us to define the [latter] by [something better known].”¹⁴³ That is, the simples of δ^1 and δ^2 are indefinable (i.e., not to be acquired through definitions) and epistemologically basic. The *Mulakhkhaṣ*, being a compendium, does not fully expound, specifically in logic, on the philosophical significance of the points, though as we will see shortly he will point out some important philosophical problems. The *Nihāya* and *Sharḥ al-Ishārāt*, being much

the definition of something); (2) simples that compose composites and are indefinable but are defined with; (3) composites that compose other composites and so can be defined and defined with; (4) simples that do not compose composites and are thus indefinable and not defined with. By definition here he means technical but not real definition. That exact description of definition provided in the *Sharḥ al-ʿUyūn*, “making precise what a name signifies in a general way” (*tafṣīlu mā dalla ʿalayhi al-ism bi-l-ijmāl*), is found in this much earlier work. See *Mulakhkhaṣ*, 106, 107-108, 110.

¹⁴³ Rāzī, *Mulakhkhaṣ*, 109.

longer works, expand on these points made in the *Mulakhkhaṣ* regarding sensible simples with a number of examples.

The first of the twenty parts of the *Nihāya* (each referred to as *Aṣl*) assesses introductory problems (*muqaddimāt*) regarding definitions and proofs. The section can be viewed as the equivalent to the logic section of the *Mulakhkhaṣ*, though it proceeds in a very different manner.¹⁴⁴ The discussion of definition in the *Nihāya* proceeds primarily without referring to the familiar terms of Aristotelian logic and is not structured like the logic of the *Mulakhkhaṣ*, which for example systematically discusses the Porphyrian predicables.¹⁴⁵ However, he does point out specific positions of the Aristotelian logicians, specifically regarding real definitions and the status of the genus and differentia, as we shall see in Chapter 3 of this dissertation. Indeed, we will see that his argument in the *Nihāya* against real definitions is precisely the argument he provides in the *Mulakhkhaṣ*. As such, Chapters 1 and 3 of the dissertation will establish that although Rāzī seems to be more of an Aristotelian in the *Mulakhkhaṣ* and more of a *mutakallim* in the *Nihāya*, his philosophical programme specifically regarding definitions and predication is the same in both works.

Returning to Rāzī's problem concerning the conception and indefinability of sensible simples, the fifth section of the first part of the *Nihāya* discusses knowledge that is not acquired, which corresponds to the section of the *Mulakhkhaṣ* discussed above on acquiring conceptions of simples. As in the *Mulakhkhaṣ*, he specifically addresses

¹⁴⁴ As clarified further below, he does not presume the manner of studying logic in the Aristotelian school curriculum and as such he will generally avoid the terminology and the extensive discussion of syllogistic reasoning. However, we will see that he does directly address core questions raised in the *Organon*.

¹⁴⁵ However, it will be shown below that even the *Mulakhkhaṣ* will clarify the terminology so as to reflect his epistemic principles. See below on his discussion of part simpliciter (*juzʿ*) versus essential part (*dhātī*) as constituents of the quiddity.

sensibles (*maḥsūsāt*) and makes the same point that defining them would require knowledge of things that are better known.¹⁴⁶ However, Rāzī provides examples of the violations of the rule, or *qānūn* as he called it in **T2**, of the Indefinability of Sensibles. In his first example, Rāzī states that the *falāsifa* attempt to define ‘heat’ as “that which combines similar things and disperses differing things” and ‘cold’ as “the opposite of that”.¹⁴⁷ He then argues that if this definition means that the sensible quality that we name ‘heat’ necessarily applies to or entails those effects (*mūjiba li-hādhihi al-āthār*), then it is a claim that requires proof and a proof, he notes, is distinct from definition. This is a central point that we shall return to since it applies to his view of real definitions more generally. Here, Rāzī argues against the view that these (scientific) definitions provide a more precise conception of the terms ‘heat’ and ‘cold’. He argues that the perceived sensible quality is better known than the properties set out in the scientific definition. Rāzī here has something specific in mind, particularly regarding the nature of the properties set out in Aristotelian definitions, which is not elucidated in the *Nihāya*. Fortunately, the relation of the Indefinability of Sensibles to the views of the *falāsifa* is assessed in further detail in his commentary on Avicenna’s *Ishārāt*. Rāzī provides the full version of the truncated definitions provided in the *Nihāya* of ‘heat’ and ‘cold’ in addition to the definitions of other sensibles, citing Avicenna’s *Book of Definitions* (*Hudūd*) and *al-Shifā’*³ (specifically, *Generation and Corruption of The Physics*). Here, Rāzī holds that, in the Aristotelian view, these definitions are of the primary properties of sensible bodies

¹⁴⁶ This part of the discussion is shorter than the *Mulakhkhaṣ* as he leaves out the list of sensibles provided in the *Mulakhkhaṣ*. I will stick to using the single-quotes because Rāzī wants to emphasize that these terms are those ordinary-language terms that signify pre-scientific concepts, as clarified below.

¹⁴⁷ Rāzī, *Nihāyat al-‘Uqūl fī Dirāyat al-Uṣūl*, Ayasofya 2376, fol. 6b. These are the truncated definitions of “heat” and “cold” that Avicenna provides in *Generation and Corruption of the Physics* of *al-Shifā’*. See *Faṣl* 9, p. 154.

or, as he states, “the primary powers (*quwā*) through which action and reaction are completed in the [four] elements.”¹⁴⁸

Rāzī’s discussion of the scientific definition of sensibles builds on his discussion of Avicenna’s view of elemental forms (*al-ṣuwar al-naw‘iyya*) a number of chapters back, where Rāzī suggests that the elemental forms are not essential forms but (phenomenal) properties, a discussion we shall return to in Chapter 5.¹⁴⁹ In the section under discussion, Rāzī raises the same objection to re-defining sensibles such as “heat”, but adds here that we know of the properties set out in such definitions only after expending “great effort in applying induction (*istiqrā’*) to their cases and seeking out their particular instances.”¹⁵⁰ It is in this sense that Rāzī argued in the *Nihāya* that the properties in the scientific definition are known in a weaker sense than our common everyday knowledge of sensibles. Indeed, he goes on to argue that, even if we rely on induction, we will not know that these properties are grounded in the essential qualities (*al-kayfiyya al-qā’ima*) in, say, the element of fire since induction cannot provide knowledge that this is necessarily the case. Significantly, Rāzī adds that we would need to rule out, for example, that God is a willing agent for this premise to hold since it could simply be a result of the processional or phenomenal regularity (*ijrā’ al-‘āda*) that results from divine choice. He concludes by stating that taking the definition to be true of the essence of heat, in the sense intended by the *falāsifa*, requires settling such metaphysical questions by an extended and minute philosophical investigation. In short, our knowledge even of the essential properties of the elemental forms requires proof and so their definitions cannot supersede the primary meaning of a term based on the more reliable

¹⁴⁸ Rāzī, *Sharḥ al-Ishārāt*, II, 159.

¹⁴⁹ See Ibid., 75-80.

¹⁵⁰ Ibid., 160.

source of sense perception. In Chapter 5, I examine how Rāzī provides an alternative view of elemental forms or properties that does not rely on hylomorphic analysis. However, it is not clear, yet, how Rāzī precisely construes sensibles. A full understanding of Rāzī's systematic view of sensibles involves an assessment of his philosophical analysis of sensible qualities (*al-kayfiyyāt al-maḥsūsa*) in the second book of the *Mulakhkhaṣ* and the *Mabāḥith*. However, let us first return to the outline of his epistemological programme in **T2**, which provides some further distinctions with regard to the notion of sensible simples.

We have then the real scientific definition of sensible terms, such as 'heat', advanced by the Aristotelians. But if, according to the rule of the Indefinability of Sensible Terms, they cannot be defined thus, what does Rāzī have to say about such sensible terms? We certainly hope that he has more to say about what sensibles are than the mere fact that they are objects of sense perception. He does state that the objects of sense perception, though indefinable, can be shown or described by "pointing toward" or "indicating" (*al-ishāra*). Pointing cannot, in Rāzī's view, simply mean identifying individual instances of sense experience. Recall that Rāzī discusses the nature of sensibles in the context of his commentary on the question "What is it?". But pointing cannot constitute an adequate answer to the question, since the "What is it?" does not apply to individuals but rather to universals or kinds, as discussed above (i.e., the *what-is-it* of a thing). Rāzī in fact agrees with Avicenna and the Aristotelians, that individuals are indefinable. Indeed, as we saw above in the context of Avicenna's *Demonstration*, regardless of whether the question concerns the essential or nominal nature of the definiendum, the inquiry into "What is it?" applies to universals. However, if we first

take a closer look at **T2**, we will see that Rāzī attempts to provide examples of “definitions” of sensibles or responses to the “What is it?”. In **T2**, Rāzī had stated: “[I]f it is asked, ‘What is heat?,’ the answer to this question is to state that ‘It is that thing which is perceived by the sense of touch upon touching a body of fire’. The answer is similar [when] one states, ‘What is whiteness?,’ namely, [one responds] that ‘It is that which is perceived by the sense of sight upon looking at colors’. Now, if we take the two possible definitions or responses to “What is it?” specifically of ‘heat’, we have the following:

- a) heat =_{df} that which is perceived by the sense of touch upon touching a body of fire (Rāzī’s definition at ε of **T2**).¹⁵¹
- b) heat =_{df} the active quality moving that in which it inheres upward due to it causing lightness and because of which it collects things that are alike and disperses those that differ (the Aristotelian definition).

Importantly, as noted, definition (b) is meant to apply to a sensible quality (*al-kayfiyya al-maḥsūsa*) according to Avicenna and even more it defines what ‘heat’ actually is (i.e., it is a response to ‘What is it?’ as applied to a qualitative accident). That the scientific definition of ‘heat’ is grounded in the sensible quality is a central commitment of Aristotelian science since the domain of inquiry, physics, concerns sensible or perceptible bodies.¹⁵² The four elements of the physical world (fire, earth, water, and air) are combinations of the contrary perceptible qualities, heat/cold and moisture/dryness, scientifically defined. The perceptible contraries, further, constitute the core explanatory

¹⁵¹ Following the philosophical literature, I will use “=_{df}” to signify the technical or real definition of a term.

¹⁵² Aristotle, for example, states at *De Caelo*, 306^a 9: “It seems that perceptible things require perceptible principles, eternal things eternal principles, corruptible things corruptible principles; and, in general, every subject matter principles homogeneous with itself.”

principles of physical change, since all other qualities and changes can be reduced to these essential sensible qualities of the four elements constituting the world of generation and corruption. This model of scientific explanation follows the theory of science set out in *Posterior Analytics* as we discussed in the previous section. Real definitions of such essences are thus crucial, at least in theory, to the larger project of philosophically or scientifically understanding natural phenomena. What Rāzī makes clear in his analysis is that definition (b) is not meant to stipulate a new technical or scientific sense of ‘heat’, which for Rāzī, as we will see, would be unobjectionable.

Now let us first examine definition (a). Recall that Rāzī asserts that knowledge of sensibles constitutes the most perfect degree of knowledge. But in **T2** he *seems* to identify this kind with our subjective experience of a sensible quality. This is suggested in **T2** where he indicates that sensibles perceived “by the senses” have the same status as internal psychological states, i.e., those objects of knowledge grasped “by the self”. However, if that is the case, Rāzī should respond to the question of “What is it?” with a subjective response, e.g., *I feel hot*, *I see white*, or *I feel pain*. In such statements, the indexical, “*I*”, determines a subjective and individual context of experience and it is precisely those empirical experiences that constitute the most perfect knowledge. Construed thus, what Rāzī means by sensibles or “*maḥsūsāt*” would be something like qualia or the “incorrigible” sense-data that some logical positivists in the 20th century believed should serve as a foundation for empirical statements. They viewed such experiences as incorrigible – i.e., impervious to doubt – because, for example, when I say “I feel pain”, *when* I am feeling in pain, it is impossible for me to be mistaken about my experience of feeling pain. That is, the statement, “I feel pain”, records only my

subjective experience of that instance of pain and does not make any objective claims about the independently observable or ontological nature of the pain. Indeed, others may even doubt the truth of my statement (from some objective or external perspective) and even I myself can doubt it at another time when I am not feeling pain. The precise details of the notion of incorrigible sense-data need not detain us, but it simply needs noting that the view that sense-data, construed thus, can serve as the foundations of empirical statements was severely criticized and ultimately abandoned. That is, the move directly from subjective experiences or sense-data to objective or intersubjective empirical statements was viewed as being riddled with problems. If Rāzī views *maḥsūsāt* as sense-data or qualia, and their epistemic status as being subjectively incorrigible in the way some logical positivists viewed sense-data, then Rāzī will, or at least ought to, severely limit the role of this category of knowledge in his system. But it is quite clear that Rāzī does not think that *maḥsūsāt* are limited in this way for a number of reasons. For one, Rāzī has much to say about sensibles in Book II of the *Mulakhkhaṣ* and the *Mabāḥith*, aspects of which will be discussed shortly.

Rāzī's sample definitions of the sensibles of "heat" and "color" in **T2**, which are formulated as responses to "What is it?", suggests that what he has in mind is distinct from the individual instances of sense experience. That is, in addition to the fact that it is an answer to "What is it?", which applies to universals not particulars, his formulation, "That which is perceived by the sense of..." (or in the case of psychological states, "It is the thing which you find in *yourself* upon such-and-such a state") removes the indexical "*I*" and attempts to formulate the experience independently of the speaker. Even in the case of psychological states, Rāzī inserts "yourself", which quite clearly applies to the

theoretical questioner and not necessarily to any particular individual. As such, it would seem that Rāzī formulates these “observational” statements so as to remove subjective indexicals and replace them with what might be viewed as objective or inter-subjective indexicals, e.g., *that which* or *yourself*. This is perhaps too speculative. More could be said, or conjectured, about Rāzī’s formulations in **T2**, but, in a particularly illuminating passage of the *Nihāya*, Rāzī establishes a number of central points regarding the nature of our knowledge of sensibles which supports this very reading. Recall that in the *Nihāya* the dispute, particularly with the *falāsifa*, concerned the relation of the essential properties set out in the real definition of, say, {heat}, to the sense given by the linguistic term ‘heat’. Rāzī states regarding the philosopher’s definition:

T3

[(i)] If what they mean by that [definition] is to clarify that this sensible quality that we call “heat” necessarily entails these effects (*al-āthār*) [i.e., the properties in the real definition], then that is a claim (*daʿwā*) that requires proof and a claim other than a definition. [(ii)] If [however] the aim of it is to clarify the definition (*taʿrīf*) of the thing named (*al-musammā*) by the term “heat”, then that is a lexical definition (*taʿrīf lughawī*), because those things [i.e., the essential properties] that they [the philosophers] mention never occurred to the minds of speakers of the language (*ahl al-lughā*) when they applied the term “heat”[...]. [(iii)] If [finally] the aim of it is the definition (*taʿrīf*) of this sensible quality (*al-kayfiyya al-maḥsūsa*) which we perceive when we touch fire, then it is known that this quality is better known to everyone than these things that they mention, because the masses (*al-ʿawāmm*), all of them, distinguish between heat insofar as it is heat (*min ḥaythu hiya ḥarāra*) and what is

other than it. But distinguishing a thing from [what is] other than it is only possible after [having] knowledge of that thing. **Hence, the masses know the reality of heat, even if they do not know that it is “that which combines similar things and disperses differing things.” As for the [intellectual] elites (*al-khawāṣṣ*), they do not know that heat is like this [i.e., accords to the real definition] without proof [*ḥujja*].**¹⁵³

Rāzī distinguishes between three possible objects of definition or, more generally, three possible aims that the *falāsifa* might have in defining ‘heat’. First is what he calls the “claim” or assertion that the properties in the definiens apply necessarily to the definiendum. As discussed in the previous section, Aristotelian definitions provide the necessary or *per se* properties that apply to an essence. However, definitions themselves are indemonstrable to avoid the infinite regress or circularity that arises from the requirement that all premises of demonstrations need to be demonstrated. That is, real definitions provide the immediate and necessary premises of demonstrations. Rāzī is well aware that this is what the theory of demonstrative science demands, as he makes clear in various places, including in his commentary on Avicenna’s discussion of demonstrative science in the *Ishārāt*.¹⁵⁴ Further, it is Rāzī’s own position that definitions cannot be proven by deductions.¹⁵⁵ However, here he distinguishes clearly between nominal definitions and real definitions. In the *Mulakhkhaṣ*, Rāzī devotes a chapter in his section on definitions to this precise problem, entitled “That definitions are not acquired by means of proof” (*fī anna l-ḥadd ghayr yuktasab bi-l-ḥujja*). Crucially, however, he states,

¹⁵³ *Nihāya*, fol. 5a.

¹⁵⁴ See *Sharḥ al-Ishārāt*, 1, 345-351.

¹⁵⁵ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 110.

T4

[This is] because a definition (*al-ḥadd*) is nothing but *making precise what a name signifies in a general way*, and this is something that cannot be subject to dispute except from the perspective of language, and this is not [a matter of] rational investigation (*baḥṭh ʿaqlī*)...but this [holds] if the definition is in respect of the name (*bi-ḥasb al-ism*). However, if it is in respect of the essence (*bi-ḥasb al-ḥaqīqa*), which is to point to a particular existent and claim (*yazʿamu*) that it is a composite of this or this [property], then there is no doubt that a proof is required.¹⁵⁶

The two kinds of definitions, namely “definitions in respect of the name” and “definitions in respect of the essence”, are of course nominal and real definitions respectively. It can be noted that the passage resolves the problem we encountered in **T2**, where he states precisely the definition of nominal definitions provided here. That is, it is now clear that Rāzī was in fact making that claim that, in responding to “What is it?”, definitions should *only* be construed as nominal definitions and not as real definitions. Real definitions, as the passage makes clear, make epistemological claims that go beyond the role of definitions. In Chapter 3, we will see his more “analytic” approach to the problem.

Returning to **T3**, the next two possibilities are more important, as they clarify what Rāzī’s own view of sensibles are. The next possibility, namely (ii), is that the definition aims to clarify or investigate the meaning of the named thing (*al-musammā*), i.e., the meaning of the term ‘heat’ that is employed by a particular language community. But to investigate the meaning of the term is to investigate the lexical definition, which, in turn, is to investigate the established usage of a term in the language. Rāzī’s discussion

¹⁵⁶ Ibid.

invokes the analysis of language as indicated by his statement, “Those (essential properties) that (the philosophers) mention never occurred to the minds of speakers of the language (*ahl al-lugha*) when they applied the term ‘heat’[...].” The details of Rāzī’s analysis of semantic theory is beyond the scope of this study. But we can, very briefly, summarize those points that are of philosophical importance with regard to our discussion. With regard to language, the determination of a meaning involves investigating the (historical) usage of a term, which was a crucial element in the “transmitted sciences” (*al-‘ulūm al-naqliyya*), particularly exegesis (*tafsīr*) and law (*fiqh*). In practice, this usually involved examining historical source materials, such as poetry and aphorisms, to find the primary meaning of a term. This linguistic investigation aimed to establish the primary sense that “the Positor” (*al-wāḍi‘*) of the language established or stipulated, that is, as opposed to secondary or historically accrued meanings. Determining what or who, precisely, the Positor is was a theoretical problem which was the subject of intense discussion.¹⁵⁷ For our purposes, the debate will not be particularly relevant, since our linguistic terms concern immediately perceived objects of sense, but Rāzī’s approach to the provenance and convention of language is pertinent to our discussion. In short, his view is that the question of determining the Positor involves historical and interpretive considerations that are ultimately indeterminable.¹⁵⁸ The upshot is that the Positor is an undetermined entity, be it the language community, an individual or even God.

¹⁵⁷ See Rāzī’s comprehensive discussion in *al-Maḥṣūl fī ‘Ilm al-Uṣūl*, ed. J.F. ‘Alawānī (Beirut: Mu‘assasat al-Risāla, n.d.), 181-190.

¹⁵⁸ He states, “The majority of the discerning scholars (*al-muḥaqqiqūn*) concede the possibility of all these alternatives, but refrain from making a certain judgment.” Ibid., 182.

Turning now to (iii), Rāzī examines the possibility that a definition applies to the common conception, {heat}, that is available to the everyday person untrained in the philosophical sciences. That is, {heat}, in this sense, picks out the pre-scientific concept and is contrasted with the concept that is signified by the real definition employed by those specialists in philosophy. Importantly, Rāzī's discussion, particularly in (ii) and (iii), leaves no doubt as to the nature of sensibles and whether they are, for him, simply the particular and subjective sense experiences, or sense-data, of individual persons. In (iii), Rāzī makes clear that {heat} here refers not just to the pre-scientific but also public notion, i.e., it is the concept grasped commonly by people. As Rāzī states, "Because the masses (*al-ʿawāmm*), all of them, distinguish between heat insofar as it is heat and what is other than it." Rāzī means not that each individual knows subjectively each instance of <heat>, but that people in general distinguish heat from what is not heat. More significantly, the public or intersubjective nature of the pre-scientific notion of heat (which we shall label {heat}^P to distinguish it from the real or scientific notion, or {heat}^R) is made clear if we consider the fact that, for Rāzī, 'heat' in its common usage is what signifies {heat}^P and the usage of a term is simply the (public) usage of the term in a language community, as indicated in (ii).¹⁵⁹ Our analysis of Rāzī's philosophical discussion shortly below and, more elaborately, in the following chapters, will further clarify some central aspects of the nature of public or intersubjective knowledge.

In **T3**, Rāzī makes evident a philosophical point that is crucial to avoid misunderstanding his argument, specifically the rule of the Indefinability of Sensible Terms and, more generally, his epistemological concerns in logic. That is, Rāzī is not

¹⁵⁹ Indeed, the analysis of the "semantic" provenance of words shows clearly that it is a matter of public usage.

arguing, like Ghazālī, to simply show that demonstrative knowledge falls short of the required certainty or that the Aristotelian position on a specific issue is under-determined. Rather, Rāzī is attempting to clarify the semantic foundations of his logical system, a point we shall elaborate on in the next chapter. Indeed, as we will see, Rāzī will find much use in the philosophical discussion of a thing's properties if, first, we strip the analysis of the epistemic assumption inherent in essentialism. However, in **T3**, Rāzī's main concern is not the inability of real definitions to provide scientific conceptions of sensible terms. Rather, his main concern is the fact that the epistemic assumptions encroach on the logical discussion. Here, Rāzī is attempting to regiment language so that terms and meanings that may intrude on ordinary-language terms may carry hidden epistemological claims, claims that Rāzī thinks undermine the epistemic and semantic foundations of logic. This point is underscored in **T5** below. The passage shows that, with regard to the "intrusion" of extra-ordinary meanings, Rāzī is particularly concerned with the influence that philosophical discourse has on ordinary language. It is important, then, to note that Rāzī does not take issue with stipulating or positing new meanings or terms where philosophical discourse "discovers" new concepts. In his discussion of errors in definitions in *Sharḥ al-Ishārāt*, Rāzī puts forth a narrative clarifying the development of scientific terminology and its relation to ordinary-language terms:

T 5

Know that the positors (*al-wāḍiʿīn*) of terms (*al-alfāz*) only posit terms according to the meanings of terms that they know, then those who (rationally) investigate the sciences (*al-nāẓirīn fī al-ʿulūm*) come across meanings and objects that the positors of a language do not know, and they

[i.e., the philosophers/scientists] need to use those meanings and investigate them, so naturally they needed to posit terms that signify them [i.e., the scientific concepts]. And because they disliked positing terms anew (*ibtidāʿ^{an}*), they sought the closest things (*al-ashyāʿ*) in suitability (*munāsaba*) and similarity (*mushābaha*) to the concept that they wanted to name. Then they transferred (*naqalū*) the name of that suitable meaning to that which they wanted to name. This is like what we mentioned in the beginning of this book with regard to the use of the term “power” in many senses according to the order (*tartīb*) that we mentioned.¹⁶⁰

Rāzī’s narrative explains how philosophers approach nomenclature and how new terms become attached, by “transference” (*n-q-l*), to existing terms with established meanings. He underscores the point that the philosophers wanted to avoid neologisms, that is, coining a term – i.e., a word or a linguistic type – that was not used previously in the language. Moreover, they did not simply seek out words that existed in a language but sought those terms that were most “suitable” or “similar” in meaning to the newly identified concepts.¹⁶¹ Rāzī’s point is to clarify how old terms gain new meanings but also how new meanings might enter the language undetected, since, in approaching nomenclature, the philosophers aimed to naturalize terms within the language. Rāzī makes no objection to this as long as the original meaning of a term is distinguished from the philosophical or technical meaning that becomes attached to it. As such, he does not take issue with the many senses of “power” (*quwwa*) elucidated by the philosophers since it is clear that they distinguish the technical senses from the original sense(s). But with regard to the sensible terms, we saw that this is not the case. Moreover, in Rāzī’s view,

¹⁶⁰ Rāzī, *Sharḥ al-Ishārāt*, I, 120-121.

¹⁶¹ It is not clear whether what mattered in seeking the suitability of a term was *only* its meaning, but it seems to certainly include meanings since Rāzī refers to “things” or *ashyāʿ* rather than just terms or *alfāz*.

there is much at stake specifically when it comes to the original senses attached to sensibles terms because they identify what, in his view, are epistemologically foundational concepts: hence, the primacy of the rule of the Indefinability of Sensible Terms.

Let us return to the notion of {heat}^P and how precisely Rāzī views its objective reality. The concept, as discussed, identifies the pre-scientific and public notion of heat, which is distinguished from {heat}^R that identifies the scientific concept formulated in the philosopher's definition. However, it remains to be clarified what relation might hold between the two. That is, is Rāzī arguing that the pre-scientific or everyday notion of heat is what heat is in reality, i.e., it accurately and completely corresponds to the extra-mental entity <heat>? Otherwise put, is there nothing more to the objective reality of heat than what is grasped by the common pre-scientific notion, {heat}^P? If so, then Rāzī would be committed to a number of claims. First, he would be saying that properties identified by the real definition *cannot* be proven to hold of heat. However, what Rāzī states, in **T3** and even more clearly in **T4**, is that it is a claim requiring proof and, as such, is not a real definition in the intended sense. Further, Rāzī would be also be committed to the claim that there is no further investigation of sensibles because there is nothing more to the phenomena but what is offered by the concept {heat}^P. Though this is certainly one way of viewing sensibles, it is not the approach that Rāzī will take. As discussed above, Rāzī's epistemological approach is based on a distinction between noumena and phenomena and not on the denial of noumena. Rāzī's philosophical discussion of sensible simples shows that he attempts to distinguish systematically between the phenomenal properties and the noumenal properties of a thing. In the next few chapters, I will elaborate on the structure

of Rāzī's philosophical approach, which is based on this distinction, and provide an analysis of various examples, which include not only sensible simples but complex quiddities as well, such as "body". Here I will, very quickly, look at his philosophical discussion of sensible qualities or *maḥsūsāt*, limiting myself to the problem of noumena versus phenomena.

As already mentioned, {heat}^P, as understood by the ordinary members of a language community, is signified by the ordinary term 'heat' and corresponds to the extra-mental reality, <heat>. If {heat}^P, however, corresponds to objective or external reality in the strong and exclusive sense mentioned above, there should be no reality to <heat> except that which is identified by the common notion {heat}^P. However, in the *Mabāḥith* and the *Mulakhkhaṣ*, Rāzī makes clear that there is in fact a distinction between our public or intersubjective notion of sensibles and what the sensible quality is in itself. His approach to sensibles requires a focused study and involves a number of positions he takes regarding substance and accidents established in the previous discussion. Though I will not discuss those positions here, it should be noted that our analysis of his view of the Aristotelian categories in Chapter 4 will bear directly on his view of sensible qualities.

Before examining a specific case of a sensible quality, it can be noted that, in his introductory chapters on the definition and division of qualities (*kayfiyyāt*) of the *Mabāḥith*, Rāzī notes that the approach that Avicenna takes in the *Shifā'* in dividing qualities is "weak" (*da'īfa*). As will be shown in Chapter 4, Rāzī believes that Avicenna's division is weak because the division, contrary to Avicenna's claims, does not identify real natures (i.e., we do not know the essences of such qualities). Rather, the division of

qualities, or any of the categories for that matter, is based on “external” properties or concomitants (*lawāzim*), a term which was discussed previously and which will figure prominently in Rāzī’s discussion of his own views, as shown in Chapters 2 and 3. In his discussion of the specific sensibles, heat and cold, which is found in his section on objects of the sense of touch (*al-malmūsāt*), he examines the definition of heat and cold provided by Avicenna in the *Shifā’*¹⁶² and elsewhere. He discusses various aspects of the definition that I shall leave aside for the moment. What is important to note here is that he concludes the section by raising an objection that these are not, in fact, definitions and that the properties do not apply necessarily to our concept of heat. He states in response to the objection:

T 6

We state that the aim of the descriptions (*rusūm*) of these qualities is not to provide the essences (*māhiyyāt*) of [those qualities], because sense perception provides what is possible with regard to that; rather, the aim is to mention their proper properties and their effects so that one can be distinguished (*tamayyuz*) one from another, and this obtains by [simply] mentioning these *lawāzim*.¹⁶²

Rāzī makes clear that, in his own approach to “definition”, the aim in defining ought not to be identifying the real natures of sensible qualities but their external properties or concomitants. But what does Rāzī mean by concomitants of *lawāzim*? A better understanding of what he states in **T6** will be afforded by our analysis of structured universals in the following chapters, as they explain how precisely he relates the external

¹⁶² Rāzī, *al-Mabāḥith al-Mashriyya*, ed. M. al-Baghdādī (Beirut: Dār al-Kitāb al-‘Arabī, 1990), I, 384.

properties of a universal and its parts in a way that does not presume the Aristotelian division between essential parts and accidents. In Chapter 3, I will argue that his notion of nominal definitions, which seeks only to distinguish x from non- x , allows him to appropriate properties established by induction or proof, such as those in the Aristotelian definition. This is what he means by “sense perception provides what is possible with regard to that”, i.e., possible rather than necessary properties can be applied to our common notion ‘heat’ to distinguish it from other things. In any case, the distinction here between the noumenal qualities and “phenomenal” qualities is clear enough. However, a better example, and perhaps one more significant from the perspective of analysis of Rāzī’s systematic epistemology, can be found in his discussion of the nature of color in his section on sensible objects of sight. The analysis involves a number of aspects of his theory of optics and the history of the Aristotelian view of sense perception and the nature of color, which will be dealt with in Chapter 6. Here, I provide a brief overview of the problem.

In assessing the nature of color, Rāzī examines the nature of the relation of light to the sensible quality, specifically by addressing the Aristotelian notion that color is actualized when the transparent medium between the surface of a body and the faculty of sight is actualized by light. As such, color is only color potentially when, say, it is in the dark or is in the inside of bodies.¹⁶³ There are complications here that will not detain us, particularly regarding shifts in the Aristotelian theory initiated by Avicenna.¹⁶⁴

¹⁶³ Aristotle states in *De Sensu* 439b11-12: “[W]e may define color as the limit of the transparent in determinately bounded body. For whether we consider the special class of bodies called transparent, as water and such others, or determinate bodies, which appear to possess a fixed color of their own, it is at the exterior bounding surface that all alike exhibit their color.”

¹⁶⁴ For Aristotle, the transparent medium’s being actually transparent is the primary condition for the perception of colors, that is, colors are actualized on the surface of bodies. For Avicenna, it is color that is

Importantly, Rāzī's theory of the nature of color does away with the Aristotelian analysis of potentiality and actuality and substitutes it with an analysis of phenomenal color versus noumenal color, or secondary versus primary quality of color. That is, arguing against the notion of light actualizing color, Rāzī states, "Light, no doubt, possesses an essence in itself (*māhiyya fī nafsīhi*) and it can rightly (*yaṣluḥu*) be an object of sight (*marʿiyy^{an}*). So why can it not be [the case that] that which is dependent on light is the following property (*ḥukm*): it is the possibility/suitability (*ṣiḥḥa*) of its being an object of sight and not the obtaining of that essence."¹⁶⁵ That is, color in itself is always actual but the perception of a color requires light. Rāzī, then, distinguishes between three things: (i) the disposition of the body to be a particular color when there is light, (ii) the existence of that color, and (iii) that color being such that can be seen. The first, (i), is the primary property of the essence of the color, whereas (iii) is the color in a secondary sense that we would perceive by the sense of sight if we are present and if the conditions for (ii) obtain. As we will see in Chapter 6, this draws on Rāzī's theory of perception as being relational rather than the impression or reception of the forms of things. Rāzī, then, draws a corollary from the above position. Opposing the Aristotelian view, Rāzī states that color

actualized when light obtains on the surface and the transparent medium is always transparent. For Avicenna 'color' refers to the phenomenal colors – red, green, and so forth – which are actualizations of dispositions of the surface of the body by their mingling with light. Rāzī is aware of Avicenna's departure from the Aristotelian tradition (*mukhālafat hādihā al-mashhūr*). But Rāzī provides his own position that does away with the actuality/potentiality analysis of color and states that the perception of colors depends on a body that is colored *in itself* to be illuminated. How more precisely Rāzī disagrees with Avicenna will be clarified in Chapter 6, which gets us into Rāzī's optics. Rāzī believes that Avicenna's departure from the Aristotelian theory of light and vision is inconsistent with his affirmation of a theory of perception based on form-transference or "impression" (*inṭibāʿ*), and in particular the view that vision depends on the reception of *simulacra* (*al-ashbāḥ*). Rāzī's own optics departs from both the extramission theory ascribed to the Euclideans and Galenists and the intromission theory of the Aristotelians in a number of crucial ways. For discussion of some background sources, see Peter Adamson, "Vision, Light and Color in al-Kindī, Ptolemy and the Ancient Commentators," *Arabic Sciences and Philosophy* 6 (2006), 207-236. For a discussion of Aristotle's view of color in itself (i.e., not from a psychological but physical/objective perspective), see Katerina Ierodiakonou, "Aristotle on Colours", in *Aristotle and Contemporary Science*, eds. D. Sfendoni-Mentzou, J. Hattiangadi & D.M. Johnson, vol. 2 (New York: Peter Lang, 2001), 211-25.

¹⁶⁵ Rāzī, *Mabāḥith*, I, 415.

can be viewed as obtaining actually in the interiors of body and not just their surfaces, since it is the potentiality of perceiving color that depends on light, not the existence of the proper properties constituting its essence.

As such, Rāzī here distinguishes between color in itself, or color that obtains independently of our perception of it, and the perceptible color which is dependent on various factors including light. The former sense of color corresponds to the objective extra-mental property, (i), which can be called $\langle \text{color} \rangle^R$, while the later corresponds to what can possibly be perceived.¹⁶⁶ If we return to Rāzī's semantic system, the color in the latter sense is that which is picked out by our common language terms, 'red', 'white', and so on. Crucially, however, 'red' and 'white' do not correspond directly to $\langle \text{red} \rangle^R$ and $\langle \text{white} \rangle^R$, since those are not the immediate possible objects of perception. Rather, 'red' or 'white' correspond to our collective human experience of the color, which requires the relevant conditions. That is, in a similar way to that of heat, which may or may not have those additional essential properties discovered by the specialists, 'red' in our everyday usage does not correspond to those properties that obtain independently of the conditions that make them perceptible (i.e., $\langle \text{red} \rangle^R$), even if the perceptible everyday quality may essentially and existentially depend on the former. The everyday concept {red} then corresponds not simply and directly to objective reality, or $\langle \text{red} \rangle^R$, but to red insofar as we identify it as the color we collectively perceive, which can be called the inter-subjective concept of red, or {red}^I. Rāzī's interpretation of color is proposed to allow for the same primary properties to give rise to different colors, or secondary properties, under differing circumstances. We will see in Chapter 6 that this is precisely what he is

¹⁶⁶ These general distinctions will be made more precise in Chapter 6 as they require a number of principles established in his systematic epistemology and psychology.

after. In the following chapters, I shall provide further examples from Rāzī's philosophical discussion that will expand on aspects of the above analysis as more principles are introduced into his system.

Let us return, now, to Rāzī's attempt at formulating an answer to "What is it?" with regard to sensibles in **T2**, where he avoided the pure indexical "T" and attempted to use a demonstrative indexical, like "that". In the context of the above discussion, these formulations might be viewed as identifying the observable and public events that give rise to the perceptions of such sensible qualities. This is consistent with his philosophical analysis where the pre-scientific public notion, say, {red}^P, is distinguished from the essential nature of red. Moreover, Rāzī also distinguishes the public notion from properties (i.e., *lawāzim*) that might apply *after* philosophical or scientific investigation. As we shall see in further detail, Rāzī's alternative approach to philosophical and scientific investigation is built on this primary epistemological principle. Indeed, it might be noted here that, rather than belittling scientific investigation, Rāzī wants to systematically assess natural phenomena without the stronger (causal) explanatory model of Aristotelian science which is based on the knowledge of essences and demonstrative proof. Rāzī is attempting to systematically study the phenomenal properties of things, which often will require some probabilistic method of inquiry such as induction and which cannot override our more certain epistemological truths without the proper kind of proof, a point which will be explored further in the following chapters.¹⁶⁷ But enough on simples and sensibles for now. We turn briefly to knowledge of complex quiddities,

¹⁶⁷ Note that Avicenna states in *Demonstration*, 211: "Definitions are not acquired through induction. And this has been clarified by [the fact] that real induction is from sensible individuals, which have no definition as we have clarified."

before a more thorough examination of Rāzī's logical analysis of universals in the next chapter.

What has been underscored above, perhaps indirectly, is that Rāzī's discussion of simple and complex quiddities places particular emphasis on sensible entities. Indeed, his analysis might be viewed as exclusively applying to quiddities and definitions of natural or sensible phenomena, as evidenced in the structure of his argument and in the fact that, in many of the passages above, we saw that Rāzī explicitly states that he is considering the essence of this or that perceived entity.¹⁶⁸ Rāzī's explicit references to the senses and extra-mental reality indicates that he is aware that his critique of the Aristotelian theory applies specifically to the epistemological assumptions inherent in the latter's view of natural phenomena, a point which will become more evident as our analysis proceeds.¹⁶⁹

As discussed, complex sensible quiddities or natures, taken as substantial unities of some sort, constitute a primary object of real definitions for the Aristotelians. In **T2**, we saw that Rāzī raises the technical sense of definition (*ḥadd*), in contrast to the general term *ta'arīf*, which applies to sensibles, when he specifically turns to the discussion of complexes. However, it was not clear there how he viewed our knowledge of complex sensibles. It is clear that sensible simples are epistemically more basic than complexes, but it is not clear in what precise sense. We also noted that complexes were similar to Rāzī's third category of simples (δ^3), which were not perceived by the senses. However,

¹⁶⁸ Rāzī has often pointed specifically to the sense of "sight". In Chapter 6, we will see that he accords a special status to vision because it relates to the form-reception theory of perception in a specific way.

¹⁶⁹ Note that this is quite unique in the history of pre-modern philosophy and science. For example, Owen Goldin states that due to the nature of the reception of late antique views of Aristotle's theory of demonstration, the scholastic tradition "never squarely faced the question of the nature of the immediate premises involved in demonstration that explain natural phenomena." See his "Two Traditions in the Ancient *Posterior Analytics* Commentaries," in *Interpreting Aristotle's Posterior Analytics in Late Antiquity and Beyond* ed. F. de Haas, M. Leunissen, & M. Martijn (Leiden: Brill, 2010), 156-182 (182).

he does, of course, believe that complex sensibles are perceived, as will be made clearer below, but it is not clear what the status of their universals is. In **T1**, he distinguishes explicitly between the observable or phenomenal properties of complex quiddities and the essential properties of things or kinds and stated that the latter is beyond our scope of knowledge. As well, in **T1**, Rāzī had stated that those things we know are simply the named things, i.e., *musammayāt*. However it was not entirely clear what he meant by *musammayāt*.

Our analysis of Rāzī's semantic and epistemological views suggests what he means by named (complex) things. That is, complex quiddities are simply those complex sensible entities that are picked out by our everyday use of terms such as 'man', 'horse', and so on. But it is still not clear how, precisely, he would distinguish here between phenomenal {man} and essential {man}. The next chapter, which discusses Rāzī's attempt to undermine the Aristotelian theory of predication by effacing the distinction and dependency relation between essential/constitutive properties and external/accidental properties will show this. Further, in the chapter following that on definitions, I will argue that nominal definitions provide knowledge only of phenomenal properties because real definitions are analytically problematic. In the following, I will briefly discuss a number of epistemological and psychological points or cautionary notes that Rāzī highlights at the beginning of the logic in the *Mulakhkhaṣ*, which relate particularly to complexes. A full analysis of the philosophical problem will be provided in Chapter 6.

In the introductory part of the logic of the *Mulakhkhaṣ*, after discussing the signification and division of terms, Rāzī turns to the division of universals.¹⁷⁰ The final

¹⁷⁰ Rāzī, *Maṭīq al-Mulakhkhaṣ*, 26-27.

division he considers is the division made by the Aristotelian commentators of a universal into its natural, logical and intelligible aspects. Rāzī dwells on and takes issue with the last, particularly the commonly held view (*al-mashhūr*) of equating the intelligible universal (*al-kullī al-^caqlī*) with a mental form (*al-ṣūra al-dhihniyya*). He provides a interpretation of how a mental form is construed: “What is meant is that if any one of the individuals of one species, existing in external reality, is presented to the soul, as opposed to another [individual], and the soul takes that quiddity abstracted of all its concomitant [accidents] (*lawāḥiq*), what obtains in the soul is only the [same] effect or its equivalent [i.e., to that of another of that species].”¹⁷¹ The quote closely parallels Avicenna’s phrasing in Book V in the *Metaphysics* of *al-Shifā’*, where he discusses the mental form.¹⁷² The discussion centers on how individual mental forms can be viewed as universals and on the question of the correspondence (*muṭābaqa*) of mental forms to individuals. The response invokes Avicenna’s theory of abstraction, which maintains that forms of (composite) individuals are reliably transmitted through the senses to the higher faculties of the soul where they are abstracted of accidents. These forms abstracted from accidents correspond to the essence or quiddity of the individuals. Avicenna’s theory will be discussed further in Chapter 6. Here, it can be noted that the unity of real definitions, which we saw was ensured by the Aristotelian theory of definition and universals, has a

¹⁷¹ Ibid., 28.

¹⁷² In V.1, Avicenna states, “It [i.e., the intelligible form] is one concept in the intellect whose relation to any one of the instances of animal does not differ. In other words, whichever [of these instances you take] whose representation is brought to the imagination in any state—the intellect thereafter abstracting its pure concept (*mujarrad ma^cnāhu*) from the accidents—then this very form obtains in the intellect.” In V.2, where Avicenna elaborates on the same point, he uses the term effect (*athar*): “For this effect (*athar*), is the same as the form of the previous [individual] which was abstracted of accidents.” Both in the *Mulakhkhaṣ* and in the *Metaphysics* of the *Shifā’*, the discussion centers around how mental forms, being individuals in individual minds, can be universal. See, Avicenna, *al-Shifā’: al-Ilāhiyyāt (The Metaphysics of The Healing)*, transl. M. Marmura with Arabic text (Provo, UT: Brigham Young University Press, 200), 156 & 160 (hereon referred to as *Metaphysics*; any references to Aristotle’s *Metaphysics* will be clearly distinguished). The translations are Marmura’s with modifications.

psychological parallel in Avicenna. That is, the forms or quiddities of a complex sensible in the mind is acquired through a psychological process of abstraction; more specifically, the various internal mental faculties distinguishes accidental unities from natural or substantial unities (which as we will see Avicenna refers to as *ittiḥād jawharī tabīʿī*). Following his summary of the *falāsifa*'s interpretation of mental forms, Rāzī states “this view is based on the assertion of mental forms, which according to us is unfounded (*bāṭil*).”¹⁷³ His rejection of mental forms, particularly abstract forms, is a matter he states will be taken up in philosophy (*ḥikma*) rather than logic. As noted, his analysis of mental forms, which involves a lengthy discussion of his analysis of the nature of knowledge, abstraction and perception, will be treated in Chapter 6. Here, I will focus on the problems he raises in the logic text itself, which primarily concern the nature of the correspondence of concepts to composites, and I will only briefly refer to his philosophical analysis.

After clarifying his own position on mental forms, Rāzī raises a number of problems, the first of which, he states, arises even on the assumption of the theory of mental forms (*bi-taqdīr al-qawl bihā*). He states that one cannot maintain the universality of mental concepts on this interpretation of mental forms, that is, as being an essential (*dhātī*) property which constitutes a part of the quiddity of a thing. This is because the quiddity may come into existence after the individual and thus cannot be a part. This objection of course can easily be met, for example, by appealing to the isomorphic representative nature of mental forms. The presuppositions involved in this objection will be clarified in the next chapter (particularly as he questions the notion of the

¹⁷³ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 28.

constituent parts of a quiddity in itself applying independently of existence). But it can be noted here that Rāzī wants to underscore the representative nature of mental forms. In his philosophical discussion as analyzed in Chapter 6, we will see that Rāzī lays particular emphasis on representation (*tamaththul*) and how one is to conceive mental forms as corresponding to the essences or parts of the essences of things. He understands that mental forms may be viewed as being isomorphic to what they correspond to in external reality, but doubts that this can mean that they correspond to the essences of external individuals or their conceptual parts, a view which parallels, and is bolstered by, his objection to the Aristotelian theory of predication. I argue in Chapter 6 that his rejection of mental forms, i.e., specifically forms of complex sensible objects, is motivated by his view of representations of sensible complexes as being mind-dependent or arising from mental constructions.

The next problem that Rāzī raises deals specifically with the statement above “that the effect on the soul from each one of those individuals is one”, for which he attempts to provide an alternative explanation.¹⁷⁴ The problem concerns the nature of concept formation, specifically how universals correspond to individuals of a class, which we shall return to later. He suggests that the way to understand the above statement is:

T 7

[W]e conceive a common factor (*qadr mushtarak*) between those individuals. [But] if the conception of a common factor is not related to the realization (*taḥaqquq*) of the common factor [in external reality], the mental conception (*al-taṣawwur al-dhihnī*) does not correspond (*muṭābiq*)

¹⁷⁴ Interestingly, the wording reflects Avicenna’s phrasing in V.2 more than it does his summary quoted above.

to external reality (*al-amr al-khārijī*) and thus is not knowledge (*jahl*). If it does correspond, then that common factor must obtain in itself (*fī nafs al-amr*). That common thing is what is universal in reality, and the mental form is only called universal metaphorically due to its being knowledge connected with what is a universal thing.¹⁷⁵

The account is meant to contrast his notion of what I have termed the “common factor” with Avicenna’s view of quiddity or mental forms. First, Rāzī omits any role for abstraction in discussing the correspondence of universals to external individuals. That is, universals ought not to be viewed as corresponding to the forms of the individuals of a kind abstracted of accidents; they correspond simply to the commonality (*al-qadr al-mushtarak*) of a set of individuals. And as he states a few lines later, the commonality is known necessarily (*bi-l-ḍarūra*). That is, obtaining the concept or universal may be due to a process of form-transference from individuals of a species, or it may be otherwise (i.e., whatever may give rise to our pre-scientific notions as picked out by our ordinary language terms). Rāzī simply wants to underscore the fact that, in logic, we are only entitled to posit concepts that simply distinguish one set of individuals from another. Rāzī’s notion of the role of definitions and his denial of the acquisition of (scientific) conceptions bear directly on this point. That is, unlike real definitions through which one acquires essential concepts, definitions, in Rāzī’s view, only distinguish (*tamayyuz*) an item, a point that was discussed above. Recall that, in *Demonstration*, Avicenna distinctly objected to the view that scientific definitions only distinguish an item and, invoking Aristotle, he demanded that real

¹⁷⁵ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 29; idem., *Mulakhkhaṣ*, fol. 4a.

definitions, which are used in demonstrative science, provide complete knowledge of the essence of a thing. Indeed, subsequent to his objections to mental or abstract forms, Rāzī states his own view:

T 8

What we hold is: We know necessarily (*bi-l-ḍarūra*) that the individuals of a single species are common (*mushtaraka*) with regard to the nature (*ṭabīʿa*) of that species and that each [individual] is distinct from another by a specific character it has (*khuṣūṣiyyatihi*), as “what makes [things] a commonality is distinct from that which differentiates them”. Thus that common factor (*al-qadr al-mushtarak*) is the universal. So the universal exists in external reality but as for that which is held popularly (*fī al-mashhūr*) of affirming an abstract form in the mind, its refutation will be taken up in philosophy (*al-ḥikma*).¹⁷⁶

Rāzī’s distinctions regarding universals in this passage will be revisited in the next chapter. It can be noted, as well, that there are a number of points in **T 8** that point to Rāzī’s epistemological views (discussed in Chapter 6) and his ontological analysis of universals (discussed in Chapter 5). What can be noted here is that in Rāzī’s view kinds, species or natures are simply the complex quiddities that are signified by ordinary language terms, i.e., the natures of “named things”. As we will see, Rāzī’s formulation of structured universals is one that will apply specifically to the (phenomenal) natures of named things. His account, however, will not deny the possibility of phenomenal properties being dependent on noumenal natures (say, Aristotelian natures) but will render them semantically irrelevant to logic. This is precisely what he did with regard to

¹⁷⁶ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 30; *Mulakhkhaṣ*, fol. 4b.

the simple nature of ‘color’. However, the question of complexes is more complicated, since Rāzī needs to formulate an alternative account of the (phenomenal) structure of universals.

An important point noted in **T8** that is relevant to our discussion is his reference to necessary knowledge. Rāzī has argued in the *Mulakhkhaṣ* and the *Nihāya*, from an epistemological angle, that the essential properties in real definitions are not necessary without a deductive proof. Knowledge of such properties is meant to contrast with our everyday grasp of universals, which, far from making any claims, simply identifies classes of distinct individuals. Of course, Rāzī will distinguish between properties that constitute, or more accurately apply to, universal kinds, but they are not notions that are accessible only to those trained in the art of definition, as Avicenna noted in *Demonstration* above. This explains Rāzī’s point about sensibles in **T3**: “...because the masses (*al-‘awāmm*), all of them, distinguish between heat insofar as it is heat (*min ḥaythu hiya ḥarāra*) and what is other than it. But distinguishing a thing from [what is] other than it is only possible after [having] knowledge of that thing.” That is, Rāzī views “knowledge of that thing”, which distinguishes heat “insofar as it is heat”, as certain or necessary only insofar as it applies to the everyday conception. He does not make any scientific claims about the necessary connection between constitutive properties and the thing itself. Similarly, in **T2**, Rāzī states that definitions can only be nominal definitions that apply to complex sensibles, and that they apply to objects in a manner that is based on complete and real knowledge. As such, the object of corresponding (or the “truthmaker”) here is not the noumenal qualities but the ordinary and phenomenal qualities of a thing. It is notable that, in **T8**, Rāzī does not say that the individuals of a

kind differ with regard to accidental properties (i.e., as opposed to the essential properties of their kind), but states that they differ with regard to their specificity (*khuṣūṣiyya*), a point that is clarified by the following. In Chapter 6, I will attempt to reconstruct Rāzī's view of phenomenal knowledge as grounded in phenomenal regularity (*al-ʿāda*).

We are left now with Rāzī's final objection to the problem of mental forms. The objection is particularly important to the above discussion and central to our discussion of the nature of Aristotelian logic. Again, against viewing universals as mental forms, Rāzī states, "Why can we not make each individual in external reality a universal by subtracting its particular [accidents] (*mushakkhkhaṣāt*)."¹⁷⁷ On Avicenna's account, as mentioned, we abstract from the instances of Zayd and ʿAmr the very same form, i.e., humanity, since our cognitive faculties abstract those accidental qualities that constitute each individual.¹⁷⁸ However, for Avicenna, there is no universal form or essence of Zayd-ness or ʿAmr-ness since there is no more specific kind, or essence, beyond

¹⁷⁷ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 29-30.

¹⁷⁸ Cf. *Demonstration*, III.5. The following points, from the translation of III.5 by J. McGinnis and D. Reisman, is pertinent to our discussion: "In short, the thing that sensory perception encounters is neither the true nature of the common human nor [the true nature] that the intellect encounters, except accidentally... So let us investigate how [to conceptualize] the human as an object of the intellect. It must be abstracted from any condition attaching to it externally, like measurement by a given determinate magnitude, qualification by a given determinate quality, delimitation by a given determinate position and place... If conceptualizing the human in the intellect by defining him were at all connected with any measurement, position, or anything similar, every human would have to share in [those things]... Now, conceptualizing the intelligibles is effected by means of the senses precisely in one way: *sensory perception takes the forms of its objects and delivers them to the imagery [faculty], and then those forms are subject to the action of our theoretical intellect*. There are there [in the imagery faculty] many forms taken from actual humans as perceived by the senses, which the intellect finds all mixed up with material accidents. For example, it finds Zayd having a particular color, complexion, shape of limbs, etc., and it finds ʿAmr having other such particular things. So the intellect turns to these material accidents and extracts them, as though it were peeling away those material accidents and setting them to one side until it arrives at the core account (*maʿna*) common [to all individuals perceived by the senses] without difference, and thereby acquiring knowledge about it and conceptualizing it." Jon McGinnis and David Reisman (eds.), *Classical Arabic Philosophy: An Anthology of Sources* (Indianapolis/Cambridge: Hackett Publishing Company Inc., 2007), 153-155. See also Avicenna's discussion of unity at *Metaphysics*, III.2 and *al-Najāt*, 2, 47-48, 86, where multiplicity and unity are viewed as concomitants of a thing's quiddity.

humanity that the cognitive faculty abstracts from Zayd or °Amr. Recall the foundational status of the *infima species* in the Aristotelian theory discussed in the previous section. “Human”, for example, identified the irreducible essence or nature of individual people, after which only accidental classes can be constructed. Rāzī, however, suggests that an individual may have a quiddity or haecceity that might be further identified as a kind and thus, potentially, an object of definition. “Haecceity” applies better to Rāzī’s discussion here, because, unlike a quiddity or essence that applies to the species or natural kind (i.e., the universal), Rāzī is considering the possibility of identifying the essence, in a broad sense, or the “thatness” of individuals, that is, immediate objects of sense perception. To what extent Rāzī develops a full-blown theory of haecceity needs further study. In any case, Rāzī’s point here is not to go back on his epistemological programme stated in **T1** that knowledge of the essences of things is beyond our grasp. His objection, rather, supports the precise point made in that passage. That is, he is raising the epistemological question as to how one might rule that possibility out, particularly given that the Aristotelians assert that the *infima species* locate the most ontologically fundamental kinds there are. As such, the Aristotelian would need to disprove the possibility of there being haecceities, even if we do not actually have knowledge of the haecceities of things. This is the point that Rāzī means to make.

There is one final point regarding knowledge of complexes in his preliminary discussion on conceptions in the *Mulakhkhaṣ*. Subsequent to the objections above, Rāzī raises a question regarding the relation of perception to a particular individual. The

particular individual, he states, can either be known by presence (*wijdān*), as for example our knowledge of our selves, or by the senses.¹⁷⁹ Regarding the latter, he asks whether the senses grasp the object of sense as it is (*‘min ḥaythu huwa huwa’*, i.e., its haecceity) or only the thing which is shared between it and another, that is, the common factor (*qadr mushtarak*). It should be noted that what is being considered here are composite individuals as opposed to the basic or simple objects of senses discussed above. He notes that the former is the commonly held view (*al-mashhūr*) but he argues for the latter.¹⁸⁰ He states that since we *can* conflate two objects with identical sensible qualities, we do not necessarily conceive the haecceity of a concrete individual.¹⁸¹ What we do conceive is its common factor or *qadr mushtarak*. He then states, “If you have understood this, then it will be apparent that that which each one of us points to by our saying ‘I’ is other than that which another [person] points to by saying that he is himself.”¹⁸² Here, Rāzī distinguishes between the pure indexical “I” and the demonstrative indexical, say, when one sees another person say “I”. That Rāzī maintains this strict distinction corroborates the interpretation that Rāzī’s descriptions of sensibles, as those given in **T2**, involve stripping them of pure indexicals and replacing the latter with demonstrative indexicals, so that the formulation provides a public or inter-subjective description of a phenomena.

¹⁷⁹ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 31.

¹⁸⁰ As indicated by previous references, when Rāzī uses *mashhūr*, it does not necessarily include Avicenna’s position, and he often addresses Avicenna directly when it concerns a particular position taken by the latter.

¹⁸¹ The argument seems problematic but this section immediately follows his argument against mental forms and so does not seem to primarily address the *falsafa* position, for which the argument is not problematic since mental forms apply equally to individuals as its quidditative universal form in the answer to “What it is?”, as discussed above. He recognizes this fact at the end of the discussion where he allows for the possibility that the sense does perceive its quiddity but in such cases the imagination (*khayāl*) simply fails to track the object. So the argument seems to be based on the denial of mental forms. That is, if we perceive only the sensible qualities of a thing, and perception in that sense gives us knowledge of what it is for that thing to be that thing, then we would not conflate it with another object with the same qualities. But we do, so we do not perceive the quiddity of that thing. The question does not concern the quiddity of a thing, but more fundamentally concerns the haecceity of a thing, which he envisages.

¹⁸² Rāzī, *Manṭiq al-Mulakhkhaṣ*, 32.

Regarding complexes as objects of knowledge, Rāzī's point here suggests that the proper objects of perception are only the simple sensibles, as suggested in **T2**, and not complex sensibles, a point we shall return to in the next chapter.

It might seem puzzling that Rāzī considers the perception of a complex individual as “not connecting with its haecceity (*min ḥaythu huwa huwa*) but rather with the common factor (*al-qadr al-mushtarak*).” Recall, however, that Rāzī considered *knowledge* of universals as the conception of a *qadr mushtarak* between individuals. That is, our conception of complex individuals and our conception of universals is of the same kind, i.e., phenomenal rather than noumenal.¹⁸³ Thus, aside from sensible simples, there are no privileged objects of knowledge, a point which contrasts with the Aristotelian theory of knowledge where perception of individuals, be they simples or complexes, is distinct from our scientific knowledge of universals (recall Avicenna's distinction between *maʿrifa* and *ʿilm* in *Demonstration*).¹⁸⁴ The question specifically concerns knowledge as it relates to our perception (*idrāk*) of complex sensible things. In Chapter 6, we will see that Rāzī raises this exact question in the context of vision. There it will be made clear, on the basis of his systematic epistemology, that our perception of even

¹⁸³ Rāzī seems to view sight as the only sense faculty that in some way perceives complexes, as we will see in Chapter 6. Recall that in **T1** he states: “As for the latter [kind of genus], it is extremely difficult, because if [for example] our sight locates a particular existent, we know that, as a whole, there is a self-subsisting entity (*dhāt^{an} qāʾimat^{an} bi-naḥsihā*), and we know that there are attributes that obtain in that entity. But if we want to know of [that] entity ‘what [kind of] thing it is’ (*ayyu shayʿin hiya*), and the attributes (*ṣifāt*) ‘what [kind of] thing it is’ and how many they are, knowledge of that becomes very difficult for us. Moreover, if we know two things that share in certain aspects and differ in another, it is not possible to know of the complete common factor ‘what [kind of] thing it is’ and how it is, and of the complete differentiating factor ‘what [kind of] thing it is’ and how it is. If that is difficult, then acquiring differentia and genus in the manner of verification (*al-taḥqīq*) is of utmost difficulty.”

¹⁸⁴ Avicenna elaborates on that point in *Demonstration*: “The existent, the thing, the cause, the principle, the particular, the universal, the limit and such things are all outside of objects of perception, even the essences of species, like the essence of human, is something that this not perceived by *khayāl* whatsoever and is not represented in the estimative faculty, rather it is only obtained by the intellect. And the same [applies] for every universal essence of the essences of the species of sensible things, let alone intelligible things.” (18) See, *al-Najāt*, 76. See also *Demonstration*, 12.

composite individuals is mediated by a number of mind-dependent processes (*bi-qiyāsⁱⁿ mā*). That is, our conception of complex sensible objects, as opposed to sensible simples, depends foundationally on conditions that obtain in our mind.

There are several points regarding the nature of *qadr mushtarak* and truth, raised particularly in **T7**, that we shall return to in the following chapters. In the next chapter, I will examine Rāzī's analysis and critique of the Aristotelian theory of *per se* predication and his alternative theory based on his notion of structured universals. Our analysis of the latter notion will clarify how Rāzī views complexes.

Chapter 2

Mereology: Constituent Parts, Substances and Structured Universals

In the preceding chapter, we examined the core elements of what I have termed Rāzī's epistemological programme in logic, which focuses specifically on the semantic and cognitive assumptions underlying the Aristotelian approach to conception and definitions. By distinguishing our ordinary language terms and their corresponding pre-scientific concepts from our conceptions of essential properties, Rāzī believes that he has flushed out extra-logical matters that encroach on the logical analysis.¹⁸⁵ I have shown that this revolves around his distinction between noumenal properties, which ought to require proof and not simply scientific definition, and phenomenal properties, though a more precise formulation of the latter remains to be had. What we have uncovered thus far is that phenomenal properties correspond to our basic concepts that are picked out by our ordinary-language terms. How additional properties might apply to, or be predicated of, those basic concepts, or what non-linguistic role his notion of nominal definitions might have, is of crucial significance and requires clarification. With regard to the relation of the epistemological concerns that Rāzī raises in the context of substantive views he discusses in philosophy proper (*ḥikma*, as he calls it), we have noted a number of points that apply to the nature of our knowledge of sensible reality. In particular, Rāzī

¹⁸⁵ I will generally use "concept" to refer specifically to that which is signified by a singular term, like, "man". I use "conception" to refer to a concept that is not only picked out by a singular term but also requires a specific method, along with the relevant epistemological principles, that lead to the correct acquisition of such a concept. "Concept", then, will refer generally to our nominal or pre-scientific notions, whereas "conception" applies to our knowledge of essences.

warns against Avicenna's theory of mental forms, which involves, in Rāzī's view, a number of problematic assumptions regarding our knowledge of universals.

The primary aim in this chapter is to examine the basic principles and structure of Rāzī's logical system, focusing on his theory of predication and how universals function as predicates. The discussion will address a number of foundational claims of the Aristotelian theory of predication, as highlighted in our preliminary discussion. We saw that the Aristotelian theory was grounded in the distinction between essential properties or constitutive parts, on the one hand, and accidental non-constitutive parts, i.e., properties external to the essence of a thing, on the other. The Aristotelian theory of predication posited an asymmetrical relation of dependency between constitutive parts and accidental or external properties in that the latter is dependent on the former, but not vice versa. As we will see, Rāzī's logical critique of the Aristotelian theory of predication can be viewed as rooted in his problematizing of that core assumption. It will become evident, however, that there is a direct relation between Rāzī's critique of the Aristotelian theory and Rāzī's larger epistemological programme. His epistemological worries centered on our knowledge of noumenal properties that are "acquired" in real definitions, which, as we will see more clearly, are precisely the constitutive parts of the essence in the Aristotelian theory of predication. If we have no epistemological access to the constitutive parts, it follows that the theory of predication cannot be based on a fundamental distinction between constitutive and external properties. Indeed, his theory of *structured universals*, as I have termed it, is Rāzī's attempt at reformulating a theory of universals after the logical analysis is cleaned of the extra-logical and epistemological

assumptions.¹⁸⁶ Here, however, we will find that Rāzī directly addresses a number of ontological assumptions regarding the mereology of quiddities (i.e., the relations of parts to wholes or within wholes). In formulating his theory of structured universals, Rāzī attempts to circumvent the problems involved in Avicenna’s formulation of the relations that hold between the quiddity and its parts (i.e., the relation of *dhātī* parts to the *māhiyya*, as discussed above).

In Chapter 4, I argue that Rāzī’s notion of structured universals is central to his approach to the study of natural phenomena in Book II of the *Mabāḥith* and the *Mulakhkhaṣ*. The categories he marks out as subdivisions of Book II, are not the Aristotelian categories, but the primary kinds of objects of phenomenal or sensible experience. To anticipate Rāzī’s general philosophical approach discussed in Chapter 4, and to provide the reader with a sense of why Rāzī might want to develop an alternative theory of universals, I examine below a particular example taken from Rāzī’s Book II regarding the nature of the sensible body. By applying the notion of structured universals to the analysis, Rāzī is able to sort out a number of confusions regarding the debate between Aristotelian hylomorphism and *kalām* atomism or indivisibilism. Importantly, Rāzī’s analysis leads him to find both views as inconclusive. Moreover, Rāzī attempts to devise a new way of looking at the problem without assuming the principles of hylomorphism or indivisibilism.

If our view of Rāzī’s approach is correct – namely, that Rāzī is sanitizing logic from extra-logical concerns particularly with regard to the nature of essences or essential (*dhātī*) properties – we should, or might, expect Rāzī to voice his concerns openly, and

¹⁸⁶ I have noted in the Introduction what I mean by “extra-logical” and the relative neutrality of logic that Rāzī aims for.

even make the necessary adjustments to his own view of quiddity. That is, one would expect that, prior to his analysis of the five predicables and definitions, Rāzī would clarify the nature of the relation of properties and parts to the quiddity. Indeed, as we saw in our discussion of Avicenna's *Madkhal*, the discussion of essential properties as parts of the quiddity occurred in his chapters on essential and accidental properties, prior to his discussion of the division and analysis of the five predicables. In fact, Avicenna's discussion showed how predicables were to be divided into kinds in the *Madkhal* and it follows the discussion of the principles of their division, as was the practice in the long commentarial tradition of Porphyry's *Isagoge*. Rāzī's discussion of concepts in the *Mulakhkhaṣ* loosely follows the structure of Avicenna's *Madkhal* and does, indeed, include an analysis of the quiddity and its parts before it turns to the predicables and definition.¹⁸⁷ Moreover, Rāzī raises a number of foundational points, regarding the nature of essential properties, which are not found in Avicenna's texts. Rāzī devotes two sections to the problem: one on quiddity (entitled, *fī mabāḥith al-māhiyya*) and the other on its part (*fī mabāḥith juz' al-māhiyya*). It should be noted that, unlike Avicenna who refers to the "essential part" (*al-dhātī*) or "constitutive part" (*al-muqawwim*) in the corresponding sections, Rāzī generally avoids the term "*dhātī*" or "*muqawwim*" and simply uses "part" (*juz'*). Avicenna's section titles do not refer to "part" (*juz'*) but more specifically to *dhātī* and *‘araḍī*, as noted above. As we will see, Rāzī will attempt to frame a more general approach to the question of the relation of parts to wholes stripped

¹⁸⁷ The introductory part of the logic of the *Mulakhkhaṣ* should be viewed as corresponding and responding to Avicenna's *Madkhal*, more than to Avicenna's discussion of predicables in the *Ishārāt*. This is evident in the division as well as the themes discussed. For example, the commonalities (*mushārahāt*) between the predicables are not discussed in the much shorter treatment in the *Ishārāt*. It is clear that Rāzī's expansions of Avicenna's lemmas in the *Ishārāt* draw on problems discussed in the *Madkhal*, such as those regarding the definition of *dhātī* and *lawāzim*. As discussed, his commentary on the second sense of *dhātī* draws on *Demonstration*.

of the epistemological assumptions involved in assessing the relations of essential parts to wholes. That is, Rāzī is interested in assessing the problems of mereology without presuming a more narrow discussion of the quiddity and its parts, which is based on the Aristotelian and Avicennan epistemology.¹⁸⁸ He does, however, directly take on some of the assumptions in the Aristotelian system. For this reason, Rāzī is forced to examine a number of ontological issues. As elaborated above, in order to systematize the relations that hold between various kinds of essential parts and in order to preserve the unity of the definiendum, the Aristotelian view posits unique genera-differentiae lines or hierarchies. On this view, genera such as “animal” encode a unique line of essential properties that implicitly provide the complete constitutive properties of, in this case, the genus of “man”. As we will see, Rāzī considers all such properties as attributes or properties simpliciter (*ṣifāt*) that apply to the essence in a symmetrical relation of dependency.

Before turning to the problems relating particularly to predication, I will very quickly note a number of points that Rāzī raises, again, against Avicenna’s epistemological and psychological commitments, which appear in his section on the quiddity and its parts in the *Mulakhkhaṣ*. First, Rāzī underscores a position, repeated in a number of his works, regarding knowledge of the part of a quiddity: not only is the part prior to the whole quiddity in existence, it is also prior in conception. This is meant to oppose the position of the “Shaykh” (i.e., Avicenna), whom Rāzī quotes as saying: “Those parts may not be known in detail, but when they are evoked in the mind they are represented in detail (*matā ukhtīrat bi-l-bāl tamaththalat mufaṣṣalat^{an}*).”¹⁸⁹ Rāzī states

¹⁸⁸ On mereology in Plato and Aristotle see Verity Harte, *Plato on Parts and Wholes: The Metaphysics of Structure* (Oxford: Clarendon Press, 2002); Edward C. Halper, *One and Many in Aristotle’s Metaphysics: Books Alpha to Delta* (Las Vegas: Parmenides Pub., 2009).

¹⁸⁹ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 43.

that Avicenna's view is that grasping the essence is prior to conceiving its parts. The passage that Rāzī has in mind is likely from the *Ishārāt*, though Avicenna makes the same point in a number of works.¹⁹⁰ In the *Ishārāt*, Avicenna states:

T 9

All of the constitutive parts (*muqawwimāt*) of a quiddity are included with the quiddity in conception, even if they do not occur in detail (*lam takhtur bi-l-bāl mufaṣṣalat^{an}*)...but if they are evoked in the mind they are represented [in detail] (*idhā ukhtirat bi-l-bāl tamaththalat*). So the essential parts (*dhātiyyāt*) of a thing – according to the custom in this place (*mawḍi^c*) of logic – are these constitutive parts, because the fundamental nature (*al-ṭabī^ca al-aṣliyya*) which only differs numerically, such as humanity, is constitutive of each individual falling under it, and to the individual are added [its] propria.¹⁹¹

The full analysis of why Avicenna distinguished between detailed representation of a quiddity and representation of the quiddity simpliciter involves a discussion of several psychological considerations, which will be discussed in Chapters 5 and 6. Here, it can be noted that Rāzī discusses the problem more fully in his commentary on the above quote from Avicenna's pointer on *al-dhātī al-muqawwim* in the logic of the *Ishārāt*. Rāzī assesses different ways of construing Avicenna's point, based on the principles of the Aristotelians. One involves the relation between Avicenna's theory of active and passive intellection and Avicenna's view of mental forms as corresponding to forms in external reality. Rāzī finds this interpretation problematic for a number of reasons that shall not

¹⁹⁰ *Sharḥ al-Ishārāt*, I, 51. See also *Najāt*, 13; *Madkhal*, 34-35.

¹⁹¹ It might be noted here that Rāzī often urges Avicenna to clarify whether he is speaking of simples or composites. The ambiguity of course relates to Avicenna's Aristotelian notion of the quiddities of substances as being simple or unitary though composite in a certain respect, as discussed above. Rāzī is aware of this but his point, as we will see, is that this involves problematic epistemological assumptions.

concern us.¹⁹² The other focuses specifically on how conception (*taṣawwur*) of the quiddity can be considered knowledge of a thing's essence, if that essence is constituted of parts that do not initially constitute a part of the conception. The concern is quite clearly motivated by Rāzī's epistemological principles, but, as we will see, it is also motivated by his own views regarding the role of parts in definitions. Here, it can be noted that Rāzī raises a distinction between knowing a thing (*al-shayʿ*) and knowing the reality of that thing (*ḥaqīqat al-shayʿ*). The former, he states, can be known even if all one knows is the concomitants (*lawāzim*) of that thing. But he asserts that one cannot have knowledge of the reality or essence (*māhiyya*) of a thing without prior knowledge of its constitutive parts.

Crucially, Rāzī notes that he is aware that what Avicenna means is that one simply needs to conceive of the causal and explanatory priority of the part to the essence, not that the conception of the parts needs to be prior to the conception of the essence. In the preliminary discussion, we saw how Avicenna sees properties as causally ordered. But, to this, Rāzī responds that if knowledge of a thing's essence consists in the knowledge of its constitutive parts, then one's knowledge of the part must have already been obtained (*ḥuṣūl*) in detail. Rāzī's objection is in part motivated by his epistemological and meta-definitional concerns, as discussed previously, about the nature of the Aristotelian definitions. In particular Rāzī underscores the point that Aristotelian definitions involve a method of systematically accessing the essential parts of a quiddity that are not immediately clear (see, for example, **T1** where the parts, i.e., genus and

¹⁹² Note that in *Sharḥ al-Ishārāt*, because he as a commentator is attempting to expand and note problems in interpretations of the Aristotelian system, Rāzī *generally* refrains from asserting his own views fully. For example, here he does not challenge the Avicennan theory of intellection/abstraction and mental form. In the chapter of the *Ishārāt* on knowledge, Rāzī will raise a barrage of problems and objections. But even there he does not elaborate on his own views.

differentia, of the definiendum lay beyond our grasp and cannot be obtained by the method of division). Definitions as a method are, as discussed, “informative”, i.e., they provide non-analytic cognitive content. As we have seen, Rāzī objects to this view of definition. In the next chapter, we will see that though nominal definitions clarify or make “more precise” aspects of the definiendum, they are not cognitively informative.

Before moving on, it should be noted that, in **T9**, Avicenna mentions that *dhātī* refers “according to the custom in this topic of logic” to the constitutive parts (*muqawwimāt*). What he means, of course, is that *dhātī* in Porphyry’s *Isagoge*, which constitutes the first book of logic, refers only to the constitutive part, whereas in *Demonstration dhātī* includes both constitutive parts and *per se* accidents (i.e., *e2*-predicates; *al-‘awāriḍ al-dhātiyya*). As discussed above, Avicenna mentions in the same section of the *Ishārāt* the second broader sense of *dhātī*, and Rāzī provides a commentary on it. We shall return later to Rāzī’s discussion of *per se* accidents. It can be noted here that Avicenna’s point regarding “custom” or tradition underscores a number of exegetical commitments – or perhaps initial conditions – that sets him apart from Rāzī.¹⁹³ That is, Avicenna will normally discuss logical problems as they have been received within the long Aristotelian commentarial tradition. Rāzī, at least in his independent works, does not limit himself to the received set of problems in the Aristotelian tradition. We have already seen in Chapter 1 that Rāzī raises and addresses a number of foundational epistemological issues that do not preoccupy the Aristotelians.

We turn now to Rāzī’s discussion in the *Mulakhkhaṣ* of the parts of the quiddity or universal. Naturally, Rāzī’s discussion assesses only the composite quiddity

¹⁹³ As noted in the Postscript, Avicenna refers to the customary way of studying and interpreting the *Organon* in a number of places. However, an exception here is his *Manṭiq al-Mashriqiyyīn*, which addresses problems in a more general manner.

(*murakkab*), since simples have no parts. I turn first to a specific position Rāzī adopts regarding the relation of the part (*juzʿ*) of a quiddity to its external properties that Rāzī raises following his preliminary discussion, to which I will return later. Rāzī states the view, consistent with the Aristotelian position, that the part of a thing cannot be its external property or “attribute” (*ṣifa*) since an attribute requires a substrate (*maḥall*) in which it inheres. That is, attributes apply to the quiddity only posterior to the quiddity’s being constituted by parts. A part, however, is never posterior to the whole. Rāzī’s discussion here is a summary of the Aristotelian position, discussed previously, of constitutive parts and inhering properties, as initially set out in the *Categories*. Indeed, as we will see, Rāzī’s discussion of inherence and substrate closely follows the set of problems raised by the *said-of/present-in* distinction that we examined in the context of Aristotle’s analysis of predicative relations in the *Categories*, although Rāzī’s discussion will move on to address the Aristotelian theory more generally. It should be noted that in the corresponding section of Avicenna’s *Madkhal*, Avicenna does not use the language of attributes (*ṣifāt*) and the substratum (*maḥall*) in which they inhere.¹⁹⁴ However, Avicenna does refer to attributes (*ṣifāt*), substratum (*maḥall*), and inherence in the relevant sections of his version of the *Categories*, *al-Maqūlāt* (especially I.3 and I.4).¹⁹⁵ There, Avicenna also uses *ṣifa* or attribute, which is not used in the relevant sections of the *Madkhal*. Avicenna’s terms, however, for the *said-of/not-said-of* and *present-in/not-present-in* distinctions are *mā yuqāl/mā lā yuqāl* and *yūjadu fī mawḍūʿ/lā yūjad*, respectively.¹⁹⁶ For

¹⁹⁴ On *kalām* discussions of attributes and attribution, R. M. Frank, “Attribute, Attribution, and Being: Three Islamic Views,” in *Philosophies of Existence, Ancient and Medieval*, ed. P. Morewedge (New York: Fordham University Press, 1982), 258-278; Ibid., *Beings and Their Attributes*”.

¹⁹⁵ Avicenna, *al-Shifāʾ, al-Maqūlāt*, ed. I. Madkūr (Cairo: al-Maṭabīʿ al-Amīriyya, 1959), hereon referred to as *Maqūlāt*.

¹⁹⁶ Avicenna, *Maqūlāt*, 18.

substrate (*maḥall*) Avicenna uses subject (*mawḍūʿ*), since as we discussed Aristotle approaches the question of inherence through the notion of predication. That is, the primary substrates in which properties inhere are the ultimate subjects of predication, which correspond ontologically to individual substances and their natural kinds. Rāzī – when not operating as a commentator especially in the *Mulakhkhaṣ* – seems to strip the discussion down to the ontological relation of inherence. Hence, Rāzī uses substrate (*maḥall*) instead of subject (*mawḍūʿ*), and inhering-in-a-substrate (*ḥāll*) instead of present-in-a-subject (*yūjad fī mawḍūʿ*). Although not much will hinge on this observation, I believe it is borne out in the following discussion.

Rāzī concludes what we have called his summary of the Aristotelian view, that “the part of the quiddity cannot be an attribute of the quiddity” by stating, “Hence, no attributes are parts, and the converse.”¹⁹⁷ That is, Rāzī seems to be underscoring the mutually exclusive relation between parts and external properties, which we saw formed an asymmetrical relation of dependency in the Aristotelian account. After stating the Aristotelian view, Rāzī raises the following objection to it:

T 10

One can undermine (*yaqdaḥu fī*) the premise asserting that the inhering property (*ḥāll*) is posterior to the substrate (*maḥall*) by stating: Why can it not be the case that the quiddity of each of those simples [i.e., the inhering properties] must necessarily inhere in that complex quiddity **with the condition that the [complex] is constituted (*takawwun*) out of those [simple inhering properties]**. On this hypothesis (*taqdīr*), the essences (*dhawāt*) of those simples are prior to the essence of the complex quiddity,

¹⁹⁷ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 42.

and their inherence in it is posterior to the constitution (*takawwun*) of the complex quiddity.¹⁹⁸

The objection is questioning the asymmetrical dependency of attributes or external properties on the whole, that is, the quiddity that is constituted solely by parts. Rāzī's point seems to depart radically from the Aristotelian theory since the complex quiddity can now be viewed as being dependent in some way on external properties as well as parts. Crucially, the distinctions raised by Rāzī (or even the problem) do not parallel anything in the relevant sections of Avicenna's works. If this is so, Rāzī's suggestion is precisely aimed at effacing the asymmetry of the dependency relation holding between parts and external properties. Indeed, Rāzī states quite clearly that the relation is symmetrical as the property is taken in two ways: qua constitutive property on which the whole depends *and* qua inhering accident which depends on the whole in terms of it being an accident. That is, "constitution" and "dependency" are no longer defined exclusively in terms of whether the properties are internal to (or a part of) the quiddity or external to it as an attribute or non-part. His statement, "with the condition that the complex quiddity is constituted (*takawwun*) out of the simple inhering properties", asserts that the quiddity can be dependent on external properties, in which case they can be viewed as "constitutive" though not in the way that an internal part is constitutive. Rāzī, notably, avoids using the term "*taqawwum*" and rather uses "*takawwun*" to refer to the quiddity's being constituted or obtaining. "Constitute", "constitutive", and certainly "constituent" in English all imply a sense of being part of the object, but I will at times use it, even when Rāzī avoids *taqawwum*. The context, I hope, will make clear the precise

¹⁹⁸ Ibid.

sense it carries. That is, stripped of what might be termed the “constituent ontology” of the Aristotelian system, the dependency relation is any relation of dependency between a property and a universal.¹⁹⁹ However, all this requires more clarification since Rāzī’s discussion here is quite terse. In the following we will look at two further aspects of his discussion of parts, before returning to look more closely at points raised in **T10**. The first is the preliminary discussion to the chapter under consideration on parts of the quiddity and other points raised in the same chapter. The second looks at a case study found in a subsequent chapter, namely, Rāzī’s discussion of differentia, where he raises a number of points regarding the relation of parts to the quiddity.

We first turn to points raised by Rāzī in the preliminary discussion regarding the relation of parts to the quiddity. As pointed out above, Avicenna assesses the relations that hold between the quiddity, its parts and its properties within his “threefold distinction” of the ontological status of the quiddity, namely: the quiddity in itself, the quiddity *in intellectu*, and the quiddity *in re*.²⁰⁰ Rāzī’s ontological analysis of Avicenna’s threefold distinction will be discussed in Chapter 5. It was noted that, with regard to logic, Avicenna separates those things that apply to a subject in each of the two kinds of existence from those that apply to it irrespective of existence (i.e., the constitutive parts as

¹⁹⁹ See Michael Loux, “Aristotle’s Constituent Ontology”, in *Oxford Studies in Metaphysics*, vol. 2 (Oxford: Clarendon Press, 2006), 207-250.

²⁰⁰ See especially *Madkhal*, I.6 (p. 34), which discusses *dhātī* and *‘aradī*. Avicenna explicitly invokes his tripartite distinction: “...as the discussion has preceded for you that things have quiddities; and that those quiddities could exist in individuals (*al-a‘yān*) or they could exist in the mind (*al-awhām*); and that the quiddity [in itself] does not necessitate for itself any one of the two existences; and each one of the two existences can only obtain (*yathbut*) after that quiddity obtains (*ba‘d thubūt tilka al-māhiyya*); and that each one of the two existences attaches (*yulḥiqu*) to the quiddity propria and accidents that apply to the quiddity upon that [specific type of] existence, and it is possible that [those propria or accidents] might not apply to it in the other existence.”

well as some concomitants or *lawāzim*).²⁰¹ The relevant kinds of properties for our analysis are not those of mental existence – such as universality, particularity (non-universality), and so on – but properties that apply with regard to existence *in re* and with regard to the quiddity itself.²⁰² Avicenna states, “I do not mean by the essential predicate (*al-maḥmūl al-dhātī*) that which the subject requires in obtaining existence, like a human being born or created or generated, or black being an accident, but rather the predicate which the subject requires in its quiddity and is internal to (*dākhil*) its quiddity and a part of it, like shape is to triangle or corporeality to human.”²⁰³ In the preliminary discussion preceding **T10**, on the relation of the part to the quiddity, Rāzī raises two problems concerning the nature of that relation. The first concerns the unity of the parts, which we will return to below. The second is about the precedence or priority (*taqaddum*) of the part to the whole (*al-kull*). The objector argues that the priority of the part cannot be explained either in terms of (i) a priority with respect to the quiddity itself or in terms of (ii) a priority with respect to existence. The former claim does not hold because priority and posteriority do not apply when the quiddity is viewed in itself. The latter claim does not hold because, as an argument provided there states, the relation of the parts to the quiddity obtains prior to existence, so the priority cannot be explained *by* existence. Rāzī offers a few responses affirming that the precedence can hold irrespective of existence in support of the Avicennan theory (or at least what is entailed by it). He states, “And part of

²⁰¹ The examples Avicenna provides of such *lawāzim*, as noted above, were from geometry (e.g., the angles of a triangle equal two right angles), but our focus is on complex sensibles, so the latter items will not be relevant. For more on this, see for example *Sharḥ al-Ishārāt*, I, 45-46 and 64.

²⁰² In Chapter 5, I will examine how Avicenna avoids using the term “external existence” (*al-wujūd al-khārijī*) and consistently uses “existence in individuals”, which we have called *in re*. Rāzī, by contrast, will use “external existence” versus “mental existence”. I argue that this is due to the divergence in their ontological views.

²⁰³ *Sharḥ al-Ishārāt*, I, 46. See also *Madkhal*, 35, 42.

what confirms this [i.e., the response] is that the quiddity, insofar as (*bi-ḥaythu*) existence can be properly said (*yaṣihhu*) to occur to it (*ya^criḍu lahā*), is an aspect (*i^ctibār*) that cannot depend on existence, but rather [existence] is among the concomitants (*lawāḥiq*) [of the quiddity]. Hence, the precedence of [the parts] to [the quiddity] cannot be by existence.”²⁰⁴ *Lawāḥiq* is, as we will see, one of Avicenna’s terms for properties, like existence, that may apply to the quiddity in itself.²⁰⁵ Rāzī is dissatisfied with this response and attempts to formulate a different notion of precedence or *taqaddum* which takes existence into account, so as to argue that the relation of the parts is not solely with respect to the quiddity in itself. He states:

T 11

Why can it not be the case that the priority is *by* existence (*bi-l-wujūd*) [in response to] the statement that “priority by existence only obtains with existence.”²⁰⁶ We say that this [statement] is unacceptable (*mamnū^c*),²⁰⁷ because if two things are such (*bi-ḥaythu*) that when they come to exist, the existence of one is dependent on the existence of the other, then that mode (*ḥaythiyya*) obtains prior to realization of existence (*taḥaqquq al-wujūd*) and that *ḥaythiyya* is what is meant by priority (*taqaddum*).²⁰⁸

²⁰⁴ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 41.

²⁰⁵ Existence, however, does not “occur” to the quiddity as does an accidental property, as discussed in Chapter 5.

²⁰⁶ This is a point stated in the initial objection and assumed as true in the “Avicennan” response. Note that Rāzī, in the *Mulakhkhaṣ*, will often raise an objection followed simply by “*qawluhu*” and a quote from a previous lemma, which is meant to show that his objection applies specifically to that lemma.

²⁰⁷ *Mamnū^c* here simply means not accepted as used in dialectic (*ādāb al-baḥth*).

²⁰⁸ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 41.

Here, the quiddity as a whole is dependent on its “parts”.²⁰⁹ But the dependency relation is not based on an interpretation of the parts being internal to or constitutive of the quiddity. Rather, it is some mode or property that is explained by the fact that the dependency relation holds *in existence*. This seems to diverge from Avicenna’s view because the relation of the quiddity in itself to its constitutive parts is a relation that holds irrespective of (external) existence, unlike proper accidents and some *lawāzim* which specifically apply in existence. Moreover, the formulation of the dependency relation is consistent with his view in **T10** that the part can be an inhering property as well. That is, the dependency relation in **T11** is not grounded in the notion that parts are internal constituents of the quiddity on the condition that the quiddity is dependent on them in existence *when they come into existence*. Moreover, Rāzī’s formulation states that the existence of the quiddity is dependent on the existence of the parts, but not the reverse. That is, the inhering properties, in **T10**, on which the quiddity is dependent, are also dependent on the quiddity, but this is because of the properties’ own quiddities, as he states. In **T10**, the dependency is symmetrical, but here, i.e., with regard to proper parts, it is not. Indeed, he states clearly, following **T11**, that the part can precede the whole.²¹⁰ The precise distinction, then, between the two kinds of properties needs clarification, which we will return to. The point that the dependency relation applies *when they come into existence* also addresses, as we shall see, the causal relations that hold between parts and quiddities as construed by the Aristotelians. In particular, we will see that there are no privileged causal features possessed by the part. It is interesting that he labels the

²⁰⁹ At the beginning of his discussion of parts, Rāzī states: “Every whole [universal] requires for its existence (*thubūt*) the existence of its parts together (*ma^{can}*), and for its non-existence (*lā-thubūt*) the non-existence of one of its parts.” *Manṭiq al-Mulakhkhaṣ*, 39.

²¹⁰ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 41.

dependency relation a “mode” or *ḥaythiyya* rather than an attribute or property. If, as I have suggested, he has formulated **T11** (i.e., the dependency relation in existence) with **T10** (i.e., symmetrical dependency) in mind, he certainly would want to avoid the dependency or *ḥaythiyya* being a property since this would lead to an infinite regress (i.e., a dependency property will itself require a dependency property). But this seems to force us to construe the *ḥaythiyya* as mental construction or in some way a mind-dependent property. Admittedly, Rāzī’s statements are brief and far from transparent. Before considering further texts that pertain to these distinctions, we shall turn to more concrete examples in his analysis of the differentia as a constitutive part. But let us first label Rāzī’s formulation of the dependency relation in **T11**: *M* (for mode or *ḥaythiyya*).

We turn, then, to a number of points regarding the theory of the quiddity and its parts that Rāzī raises in his analysis of the predicables and, in particular, in his interpretation of the parts of a definition. As discussed, on the Aristotelian view, a clear distinction is made between external or non-constitutive properties and constitutive properties, that is, properties that are parts or constituents of a thing. We formulated the notion of each thus:

P1) If a property *F* belongs as a part to *x*, *F* does not inhere in *x*.

P2) For *F* to inhere in *x* is for *F* to belong as an accident to *x*.

Briefly put, the constitutive parts (P1) are the proper parts of the definition, namely, the differentia and genus. By proper, I mean differentia and genus construed in the narrow sense that Avicenna required in the *Madkhal*. Recall that the differentia in fact refers to the narrow kind of differentia, which Avicenna called “*khāṣṣ al-khāṣṣ*”, to differentiate it

from a number of other kinds which included external properties, such as proper accidents and *lawāzim*.²¹¹ External, or more loosely “accidental”, properties (P2), on the other hand, are external to the essence and include proper accidents (i.e., *propria*), common accidents, and the broad category of *lawāzim*, as previously discussed. And because of the strict Aristotelian position on the asymmetrical dependency of (P2) on (P1), the two constituted mutually exclusive categories, which is precisely what Rāzī questions in **T10**. Moreover, let us recall that the differentia can only constitute a species in one genera-line and not in several independent genera-lines, unlike external properties. In this context, we saw the language of causal and necessary explanations. That is, the differentia *divides* (*yuqassim*) the genus and constitutes (*yuqawwimu*) the essence of a species and thus is a cause (*‘illa*) of the latter. The ontological aspects of the causal language will be examined in Chapter 5. Here we will quickly assess a few points regarding Rāzī’s alternative notion of the differentia, before returning to his more general theory of universals.

Again, if Rāzī means to assert the full consequences of the view outlined in **T10**, where he attempts to efface the distinction between constitutive parts and external properties, we should be able to detect the relevant shifts as applied in his discussion of the predicables, particularly the differentia. And this, again, is precisely what we find. Here, I will focus directly on the points relevant to the immediate discussion, before returning to Rāzī’s broader analysis of complexes and definitions.

²¹¹ Recall that Avicenna has three main types of differentia: general differentia (*‘amm*), proper differentia (*khāṣṣ*), and most proper differentia (*khāṣṣ al-khāṣṣ*). The first two have a number of subtypes but the fundamental distinction between the first two and the third (i.e., the differentia specifica) lies in the fact that the former presume an essence while the latter constitutes one.

First, in his discussion of differentia, Rāzī compares his own view to the Aristotelian/Avicennan position on the relation of the differentia to the genus and species:

T 12

The differentia is taken in relation to the absolute generic nature (*al-ṭabīʿa al-jinsiyya al-muṭlaqa*) and divides (*muqassim*) it, while in relation to the species [the differentia] is a part (*juzʿ*) of it [i.e., the species], while in relation to a particular species of the genus (*ḥiṣṣat al-nawʿi min al-jins*), the Shaykh holds (*dhahaba... ilā*) that the differentia is necessarily the cause of its existence.

But in our view, that is not necessary [i.e., that the differentia is a cause of the existence of a species], for the [reason] that the differentia can be an attribute (*ṣifa*) and the attribute is dependent on the subject of attribution (*al-mawṣūf*), and that which is dependent on a thing is not a cause (*ʿilla*) of it. Rather the matter *might* be (*qad yakūnu*) thus according to the details (*tafṣīl*) whose verification (*taḥqīq*) will be addressed in philosophy (*ḥikma*).²¹²

This is an illuminating passage for a number of reasons. I will leave the details of the ontological discussion for Chapter 5. However, it can be noted that Rāzī is underscoring the ontological implications of the Aristotelian position and quite clearly he attempts to separate those ontological implications from his own view of logical universals. A brief examination of the “intrusion” of such ontological matters in the Arabic reception of the *Organon* will be discussed in the “Postscript” to Part 1. We have discussed in general the Aristotelian view Rāzī outlines in the first paragraph of **T12** in our preliminary discussion. The details of Avicenna’s specific interpretation will be dealt with in Chapter

²¹² Rāzī, *Manṭiq al-Mulakhkhaṣ*, 73-74.

5, which involves a particular interpretation of Aristotle's form-matter analysis as it corresponds to the nature of the differentia and the genus. We will examine some aspects of that discussion below. Let us, then, turn directly to Rāzī's own view in the second paragraph.

Rāzī denies the necessity that applies specifically to Avicenna's interpretation of differentia as a cause of the particular species to which the differentia necessarily belongs. However, the reason he provides for his objection seems to overturn the entire Aristotelian notion of the relation between genera/differentiae and the species. That is, differentiae are not necessarily parts of the species but attributes (*ṣifa*). Indeed, his argument seems to be that the relation between the universal and its parts is not necessarily that between the whole and its constituent parts. Perhaps the most significant phrase in **T12** is “for the reason that the differentia *can be* an attribute...”, since this violates the very definition of differentia as postulated by the Aristotelians and specifically the necessity with which it applies to the essence. Crucially, Rāzī clarifies the dependency relation between the attribute and the universal, which is the subject of attribution, i.e., *al-mawṣūf*. Hence, the differentia is not necessarily a constitutive part but can be a dependent external attribute. Most significantly for our analysis, his alternative view of the differentia seems in **T12** to draw – directly – on the theory he sets out in his discussion of parts in **T10**. We will return to the precise relation shortly. It is important to note that Rāzī does not exclude the possibility of the differentia as being a part, a point which follows from his epistemological programme, as clarified below.

Rāzī's entire chapter on the differentia is interesting and relevant to our analysis, but my focus here is to understand the structure of Rāzī's logical system. Still, one sub-

topic in his chapter on differentia will help to draw out some of the implications of **T12**.

The discussion centers on the finitude of the parts of a quiddity. Rāzī states,

T 13

The position (*madhhab*) of the Shaykh regarding differentiae and genera entails that the final differentia (*al-faṣl al-akhīr*) be the primary cause (*al-‘illa al-ūlā*) and that the highest genus be the final effect (*al-ma‘lūl al-akhīr*). But it is not possible to use that as proof for the finitude of superordinate genera (*al-ajnās al-mutaṣā‘ida*), because a proof has only been given of the finitude of contingent things to a primary cause not to a final effect. However, according to our position (*madhhab*), this might or might not be the case. Rather, **perhaps the final differentia is the final property (*al-ṣifa al-akhīra*) and the highest genus the first subject-of-a-property (*al-mawṣūf al-awwal*)**.²¹³

The precise question concerns ontological problems dealt with in Chapter 4 and 5. But from what was outlined in our preliminary discussion, the general point is clear. That is, we assessed how the Aristotelian approach to universals (especially, in contrast to Plato’s) posited a hierarchy and finitude of essential universals, specifically differentiae and genera. Moreover, we noted that to ensure the unity of the essence of the definiendum, the Aristotelians viewed the genera and all intermediate differentiae as indeterminate and only determined by the final property, which is the differentia specifica. This causal relation was also viewed as necessary because the differentia falls exclusively in specific genera-lines so that the same differentia cannot determine or constitute a species that is in another genera-line or even another species in the same

²¹³ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 80. On Avicenna’s view, see See McGinnis, “Logic and Science,” 174–178, and the discussion in Chapter 5.

genera line.²¹⁴ Rāzī, in fact, discusses this very point – viz., that a single differentia will constitute only a single species (“*al-faṣl al-wāḥid lā yuqawwimu illā naw^{can} wāḥid^{an}*”) – as a sub-topic of his chapter on differentia.²¹⁵ He objects to possible arguments given for it and refers us to his previous discussion (i.e., quite likely **T12** or possibly even **T10**). In the *Madkhal*, Avicenna explains the role of the differentia in the terms stated by Rāzī in both **T12** and **T13**: “That which, when conjoined with the generic nature (*ṭabīʿat al-jins*), makes it [i.e., the generic nature] into a species (*yuqawwimuhu naw^{can}*)...so [the differentia] is essential to the generic nature, bringing into existence a species, which it [i.e., the differentia] establishes, distinguishes and specifies, which is like [what] rationality (*nuṭq*) is to human.”²¹⁶ The ontological aspects of the differentia construed as causes, particularly in the context of form-matter analysis, will be discussed in Chapter 4.²¹⁷ Let us turn from the Aristotelian theory to Rāzī’s own position in **T13**.

First, the term “position” (*madhhab*) is one that Rāzī uses often in the *Mulakhkhaṣ*, *Mabāḥith*, *Sharḥ al-Ishārāt* and other works. We saw in **T12** that he referred to Avicenna as “holding a position” by the verb form “*dhahaba..ilā*.” Rāzī in fact uses *madhhab* in this very chapter numerous times. He often calls a specific interpretation of Avicenna’s view a *madhhab*. He will also refer, sometimes elusively, to his own *madhhab*. I take *madhhab* in such contexts to stand for a systematic philosophical position (which roughly corresponds to one sense of the term in law, where it is viewed

²¹⁴ So “rationality”, for example, occurs only in the genus “animal” by constituting the species “man” and cannot possibly be said to be a constitutive element of say “minerals”. See Michael Frede, “Individuals in Aristotle,” in *Essays in Ancient Philosophy*, 61-62.

²¹⁵ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 80.

²¹⁶ Avicenna, *Madkhal*, 74.

²¹⁷ An important concern here for Rāzī, which I have omitted from the analysis, is his view of the relations that hold between material or enmattered parts (specifically differentiae) and abstract or immaterial differentiae. This question will be discussed in Chapter 5.

as a systematic legal position). Thus, direct quotes and citations do not constitute a *madhhab*. As will be shown below, Rāzī's usage strongly indicates that he saw himself as asserting his own systematic philosophical positions in a number of areas, including epistemology, psychology and ontology (all of which seem to form an overarching systematic approach). And he refers to those positions collectively as his *madhhab*.

Returning to **T13**, his reference here, in logic, to his *madhhab* refers to a systematic position that views properties, not as causes of specific and necessary lines of hierarchically ordered properties, but simply as “attributes” or properties of a thing whose dependency relation does *not* make them dependent on the order of constitutive parts. Indeed, in stating, “perhaps the final differentia is the final property (*al-ṣifa al-akhīra*) and the highest genus the first subject-of-a-property (*al-mawṣūf al-awwal*)”, Rāzī again draws directly on the notions advanced in **T10** (and now **T12**). His position in **T13** suggests that what might be the last determined or constituted property - i.e., highest genus in the line of genera, say, “body” with regard to “man”- might be the first subject-of-the-property. Here Rāzī means that the differentia specifica can possibly apply to a genus more general than the lowest genus that the differentia divides and, as Avicenna states, existentiates. More significantly, he states that the differentia specifica, which, as we have seen, is the cause and determinant of a species and all its properties, can be the final attribute or *ṣifa*. Rāzī's discussion of his view of the differentia in **T13** of course radically departs from the Aristotelian theory, but it is entirely consistent with everything he has stated as his alternative view. Indeed, recall that, in **T10**, Rāzī asserted that the dependency of the quiddity on parts (and inhering properties) is itself a property or “mode” applying to the dependency in existence, and not to the very nature of those parts.

But what precisely is his alternative view? The fundamental grounds on which Rāzī opposes the Aristotelian view of predication is clear. He particularly opposes the notion of constitutive parts, which is based on the division of properties of a universal into internal and external kinds that are asymmetrically dependent. Then there are more specific issues that fall under this primary objection. But Rāzī, as I have been suggesting, wants to assert a systematic or positive philosophical position of his own. To understand his systematic position, we need to assess a number of additional points and texts. But let us first take stock of what has been established so far. Indeed, the above establishes a number of crucial points from which we can begin to re-construct Rāzī's view on universals and predication, though it will remain incomplete until we examine more textual data. The following are elements of Rāzī's positive positions as established in the previous discussion:

1. For any universal x , x is dependent on all its parts, i.e., x fails to obtain if one part fails to obtain.²¹⁸
2. The “parts” of x , i.e., those properties that x depends on, can be attributes or inhering properties (*ṣifa*). Thus, the properties on which x depends can be (i) inhering properties and/or (ii) non-inhering properties (which we will call “part” though without all the Aristotelian trappings since we do not accept them in “our *madhhab*”). [From **T10**]
3. Parts and properties bear a dependency relation to the quiddity such that the quiddity is dependent on the parts or properties in existence. This is the “mode” that applies to the parts or properties of a quiddity, which we labeled M . On the

²¹⁸ At the beginning of his discussion of parts, Rāzī states: “Every whole [universal] requires for its existence (*thubūt*) the existence of its parts together (*ma^{can}*), and for its non-existence (*lā-thubūt*) the *lā-thubūt* of one of its parts.” See, *Manṭiq al-Mulakhkhaṣ*, 39.

one hand, the parts themselves may exist prior to the quiddity. On the other, with regard to inhering properties, the dependency relation is symmetrical, i.e., the inhering properties are dependent on, and not prior to, the quiddity. [From **T11**, **T12**, & **T13**]

4. There is no “nature” neutral to existence, constituted by necessary and exclusive parts.

From our analysis thus far, it is not clear what precisely M is: a further property or part of the quiddity or, perhaps, some condition. Rāzī has not suggested that the mode, M , is a further part or property of a quiddity, x . Moreover, M cannot be a property of all the parts of x , since each part of x may obtain independently of x . In the case of inhering properties, the quiddities of those properties are the ground of their dependency on x (**T10**). What we are sure of is that there are parts and then there are inhering properties. Let $P(x)$ and $I(x)$ be the functions collecting all of the parts and inhering properties, respectively, on which the quiddity, x , depends.²¹⁹ Thus, x might be viewed as constituted thus: $x = P(x) + I(x)$. However, the parts are not a sufficient condition for the existence of x , since the parts, Rāzī has stated, may exist prior to x without x 's coming into existence. Indeed, Rāzī, in **T11**, states that a mode or dependency relation that holds in existence between the parts must obtain, which is the property or condition M . Since our addition function is sufficiently vague, perhaps we can reformulate our equation thus: $x = [P(x) + I(x)] + M$. Indeed, Rāzī will himself formulate M in this way, i.e., as a further element in addition to the part and properties. But M , as suggested, cannot be a further part of x nor

²¹⁹ From what we have discussed so far, it seems that $I(x)$ can return an empty result but $P(x)$ cannot. This will be clarified below.

an inhering property since we will then require another *M*, so that we would have: $x = P(x) + I(x) + M + M' + M'' \dots$ The mode, *M*, then, must be a condition or something other than a property or part, but Rāzī has not yet clarified what that might be. Though we have shown that Rāzī's analysis was closely interconnected (particularly **T10**, **T12**, and **T13**), perhaps Rāzī did not intend his points in **T11** to be applied generally. In any case, let us see if we can find anything that might shed light on the elusive *M*-condition. Any texts that refer to the notion of *M* or discuss the dependency relation between parts and the quiddity will be helpful.

First, it can be noted that Rāzī always refers to the quiddity as the “collection” of parts (*majmūʿ*), a phrase which we encountered in **T2**. For example, he states in his chapter on parts in the *Mulakhkhaṣ*:

T14

It is not possible for any one of the parts to be more obscure (*akhfā*) [i.e., less well known] than the [quiddity], since the quiddity is nothing more than the collection of those parts (*li-annahā laysat illā majmūʿ tilka al-ajzāʾ*). So conceiving of the [quiddity] is only possible after conceiving of the parts; hence, conceiving of the quiddity cannot be more clear (*ajlā*) [i.e., better known] than [conceiving of] the parts.²²⁰

The passage addresses the conditions of definition that were usually set out by the Aristotelians (i.e., the definiens is “better known” than the definiendum), which will not immediately concern us. What we need to find out is what he means precisely by *majmūʿ al-ajzāʾ*, which we translated as “collection of parts”; that is, if

²²⁰ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 46-47.

he does indeed intend something specific. But before we investigate the term *majmūʿ*, we shall quickly turn to a few points concerning the parts themselves.

In **T14**, Rāzī states that the parts cannot be more obscure than the quiddity, which means that the parts must be equally or better known than the quiddity. However, it is not clear here in his discussion of parts and wholes what precisely the parts are or have to be, specifically with regard to the act of conception. This gets clarified in his subsequent discussion of definitions and conceptions. His analysis of definitions in this section will be better assessed in the next chapter, but here I focus on a few points. In the second chapter, Rāzī clarifies several relations that hold between parts or simples and quiddities or complexes, a few of which are relevant to our discussion. He states, “The simples of complex quiddities (*basāʾit al-māhiyyāt al-murakkaba*) cannot be defined due to their simplicity (*lā yuḥaddu li-basāʾatihā*), but the [simples] can define (*yuḥaddu bihā*) [other quiddities] since they are the parts of other quiddities [i.e., quiddities other than their own quiddities].”²²¹ That is, the simples are the indefinable parts of the definitions of a complex and the parts, of course, have quiddities distinct from the quiddities of the complexes. Simples such as these are contrasted by Rāzī with those simples that are not parts of any complex quiddities and thus do not fall in any definiens (i.e., *lā yuḥaddu bihā*). Importantly, Rāzī notes at the end of the chapter, “It is clear from these postulates (*taqdīrāt*), that a simple is either not conceived at all (*aṣl^{an}*), or if it is, its conception is not in need of acquisition (*al-iktisāb*).”²²² This recalls our discussion in Chapter 1, and especially Rāzī’s distinction in **T2** between the three

²²¹ Ibid., 107.

²²² Ibid., 108.

kinds of simples, namely, sensibles (δ^1), psychological states (δ^2), and simples that are not objects of sense perception (δ^3). Indeed, in the very next chapter, Rāzī launches into the division of simples available to conception (i.e., sensibles, δ^1 , and psychological states, δ^2), which we discussed with regard to his epistemological programme. Here it becomes clear that his epistemological programme is directly connected to his mereological analysis. That is, the parts of a complex quiddity are (simply) composed of simple sensibles or they are composed of composites composed of those sensibles. If we go back to our formula, $x = P(x) + I(x)$, we can view these functions as (ultimately) outputting simples. That is, the function collects specifically all the simples that are parts or properties on which the quiddity depends. Indeed, it is notable that in his discussion in **T10** of inhering properties, on which the quiddity depends, Rāzī called these properties “simples”. That is, both proper parts and inhering properties are simples. Still, if Rāzī has something like this in mind, the universal would simply be an aggregate of sensibles or parts, which, as it stands, does not really constitute a theory of universals (we shall discuss precisely why below). However, he did say that the complex quiddity is the “collection of those parts”; so let us turn to his notion of “collection” or *majmūʿ*.

Recall that we had left unexamined the first objection to Rāzī’s initial discussion of the parts of a quiddity, which centers on the unity of the parts. There, Rāzī raises an objection to his own view that a complex quiddity is made up of parts. The objection attempts to strike at the root of the simple versus complex distinction (as framed by Rāzī), by arguing that once we posit simples as parts of complexes we cannot (and need

not) assert that complex quiddities are unities in any way. The argument claims that the accident of unity can inhere neither in the aggregate nor the individual parts of a whole and so such simples cannot be parts of any unified quiddity.²²³ In brief, there are no complex quiddities, only aggregates of simple quiddities. That the objector uses “simple” here is important, because what the objector, it seems, has in mind is something like the indivisiblism (or atomism) of the *mutakallimūn*, according to which the only substances are simples or indivisible parts, and composites are not metaphysical unities. In any case, Rāzī’s response is short: “The [argument] is countered (*manqūḍ*) by [reference to] all *unified structures* (*al-hay’āt al-ijtimā’iyya*).” Here, *al-hay’āt al-ijtimā’iyya* seems to have a technical sense, so a literal translation will not be particularly helpful. He does in fact refer to *al-hay’a al-ijtima’iyya* in various places and to anticipate that discussion I shall call it the *unified form* or *structure*. In terms of our immediate problem, it might be noted that *ijtimā’* has the same root as *majmū’*, “collection”. However, Rāzī’s response is too terse to be of much use in clarifying how he addresses the problem. Notably, Rāzī does not quarrel here over the metaphysical intricacies of the nature of unity involved in the argument, in contrast, for example, to his response to the second objection, where he does elaborate. So, now, we have the additional mystery of what the *unified structure* is.

In his discussion of definition in the *Nihāya*, Rāzī provides an important clarification of what a *unified structure* is, especially in relation to the parts of a complex universal. He states, “We hold that the *unified structure* (*al-hay’a al-ijtimā’iyya*) is one of the parts of the complex quiddity, but is external to the quiddities of its substrates

²²³ Ibid., 40.

(*ma^crūdāt*) [i.e., the parts], and the converse.”²²⁴ Notably, the discussion in the *Nihāya* concerns the same problem – the relation of the parts to the whole – that is raised in the objection in the *Mulakhkhaṣ*. In the *Nihāya*, however, the question regards definition and, as such, focuses on the epistemological identity of parts with the quiddity rather than the metaphysical unity of the complex. That is, the question is how knowledge of the parts can lead to knowledge of the complex quiddity. The problem, as we will see, leads Rāzī to his critique of “real definitions”. Here, let us examine his positive view of what the unified structure is.

In the *Nihāya*, then, Rāzī asserts that in addition to the parts of a quiddity there is the property or further element he calls the *unified structure*. Let us call the property of being a unified structure, *I*. I use “property” here in a general sense, which may be a further part, inhering property or some other element of the quiddity. I shall leave the question open as to how this property should be construed more precisely. Rāzī states that *I* is external to the quiddity of the parts. Indeed, he considers *I* as occurring (*al-^cāriḍa*) [accidentally] to those parts (*al-hay³a al-ijtimā^ciyya al-^cāriḍa li-tilka al-ajzā³*), which is why he called the parts the “substrates” (*ma^crūdāt*) of *I*.²²⁵ If we return again to our formula, we can adjust it thus: $x = [P(x) + I(x)] + I$. And if we return to the relation of *M* – that is, the mode of dependency that holds between the parts or properties of the quiddity and the quiddity itself - to the parts of a quiddity we find a certain parallel. That is, with regard to *M*, the parts of *x* may exist independently of *x* since *x* obtains only if some additional property obtains with respect to the parts of *x*, i.e., *M*. In other words, *M* must occur accidentally to the parts of *x* (i.e., it cannot be a necessary property of the

²²⁴ *Nihāya*, fol. 4b.

²²⁵ Ibid.

parts of x), otherwise the parts of x could not exist independently of x . Similarly, I being accidental to the parts of x obtains only when x obtains and the parts of x can obtain independently of x or I . But with the latter, that is property I , we have more. That is, Rāzī explicitly states that I is an “accident” of, and in addition to, the parts of x . Like M , I cannot exist independently of the parts, but M was viewed specifically as the dependency relation between parts, the quiddity and existence. In the *Nihāya*, Rāzī focuses on the notion of the universal and its role in definition. What is crucial, however, about the status of I with regard to definition is that it is not in fact a part of the definiens. That is, I is posited as directly applying to the parts of the definition but I is not *in* the formulation of the definition. In fact, Rāzī posits I in this context to meet objections to construing the definition of x as that which simply constitutes the parts of x .

Given Rāzī’s discussion, I cannot be viewed as a sensible simple since it would then be either a part or inhering property (i.e., those items that are collected by the functions $P(x)$ or $I(x)$). Still, I must be a property that is indefinable or not acquired through definition, otherwise we would have an infinite regress of definitions. As such, what I seems to be is the perceptible or sensible form of a complex quiddity, as indicated by the lexical sense of the word *hay’a*. Indeed, it is precisely used in that sense in *kalām*. Though the term has various senses in *kalām*, including “shape”, Dhanani and Frank distinguish a particular sense of *hay’a*, which the former translates as “visual appearance” and the latter as “perceptible disposition”.²²⁶ In Dhanani’s discussion, it is clear that the *hay’a* is a certain property that explains our perceptual ability to distinguish objects of

²²⁶ See Alnoor Dhanani, *The Physical Theory of Kalām: Atoms, Space, and Void in the Baṣrian Muʿtazilī Cosmology* (Leiden: E.J. Brill, 1994), 23-24; Richard M. Frank, *Beings and Their Attributes: The Teaching of the Baṣrian School of the Muʿtazila in the Classical Period* (Albany: State University of New York Press, 1978), 105.

perception. Rāzī seems to add *ijtimāʿiyya* to qualify *hayʾa* in order to indicate the unity of the perceptible structure or form. As such, *hayʾa ijtimāʿiyya* might be viewed as referring to the perceptible rather than ontological unity of the composite quiddity.²²⁷ This, however, is somewhat speculative and, in any case, we have Rāzī's more elaborate statements on the matter in Rāzī's philosophical discussion.

First, in Book II of the *Mulakhkhaṣ*, in his chapter on the quiddity, Rāzī discusses the relation of parts or simples to the whole. Notably, the chapter is entitled, "On the manner of the *ijtimāʿ* of simples of the composite quiddity."²²⁸ In this chapter, Rāzī discusses the dependency relation that is required to hold *between* parts so that the whole is not simply an aggregate of parts; that is, the parts need to form a kind of unified reality (*ḥaqīqa muttaḥida*). He provides the example of a rock beside a man which forms a composite but is not a unified whole. However, he states, "As for the constitution (*takawwun*) of ten of the units it contains, and [the constitution] of paste (*maʿjūn*) by the collection (*ijtimāʿ*) of medical ingredients (*al-adwiya*), and the [constitution] of an army of the individuals, and the [constitution] of a village of houses, are [all] due to (*li-ajli*) the *unified structure* (*al-hayʾa al-ijtimāʿiyya*) which is one of the parts of the composite and

²²⁷ Dhanani also notes a distinct usage in Ibn al-Haytham that signifies the perceptual form of a visible body. Like Ibn al-Haytham, who disagrees on "scientific" bases, Rāzī, as mentioned, disagrees with both the intromissionists and the extramissionists, though he does so on philosophical bases. In Chapter 6, I will provide a preliminary assessment suggesting that Rāzī in fact draws on Ibn al-Haytham's theory. I only indicate here that there seems to be philosophico-scientific motivations underlying Rāzī's analysis. That is, he is seeking to construct a theory of universals which corresponds to a theory of optics that specifically rejects the notion of mental forms or "the impression of forms" (*inṭibāʿ al-ṣuwar*), which is what he believes the Aristotelians are committed to. Indeed, if we recall that he strongly opposes the notion of mental forms at the beginning of logic in the *Mulakhkhaṣ*, this hypothesis seems plausible. In Chapter 6, I will argue that his opposition to mental forms is based not only on his epistemological and logical programme, but also on the philosophical conclusions that he draws from a number of developments in optical theory. In particular, his opposition to mental forms is based on the insight he gains from optics that our conceptions of the complex objects of sense perception are mind-dependent or involve a certain mental construction (*qiyās mā*). In any case, I will proceed here without presuming or referring to any of my results there.

²²⁸ Rāzī, *Mulakhkhaṣ*, fol. 49.

it is the formal part (*al-juzʿ al-ṣūrī*) on which the rest [of the parts] depend.”²²⁹ This is a crucial passage in a number of regards. First, his examples are noteworthy in that they do not, in any way, represent examples of the kind of substantial unities that Aristotle or Avicenna have in mind. Moreover, Rāzī seems to appropriate the Aristotelian discussion of the ontological relation of form to matter to the metrological relation of the form, or structure of parts, to parts. Here, Rāzī does not even raise the notion of matter. Indeed, as we will see in Chapter 5, Rāzī will argue against the notion that form and matter apply, respectively, to the differentia and genus of a thing. In any case, we have already seen in logic that any notion of differentia as a form that is causal and constitutive is opposed by Rāzī.

Given that formal part (*al-juzʿ al-ṣūrī*), or *hayʿa ijtīmāʿiyya*, is not one that has a deeper causal or ontological role, and given his rather pedestrian examples of composite universal unities, the formal or structuring property, which he says is a part or property along with the other parts or properties, is simply a matter of the phenomenal nature of these objects. That is, composite universals are simply phenomenal unities, which, as discussed in Chapter 1, are those picked out by our ordinary language terms. In Chapter 6, I will argue that his systematic epistemology in fact views the structuring property as being mind-dependent. That is, our knowledge of complex sensible things involves a mental construction and thus the structuring property applies only to our perception of the phenomenal qualities of sensible things. In any case, what we have established thus far will be sufficient for understanding Rāzī’s logical programme, which does not draw out his more systematic and detailed positions that pertain to our conception of complex

²²⁹ Rāzī, *Mulakhkhaṣ*, fol. 49a.

quiddities. Before moving on, it should be noted that in the *Mabāḥith*, in a section treating qualities that apply properly to quantities (*al-kayfiyyāt al-mukhtaṣa bi-l-kammiyyāt*), Rāzī assesses the nature of shape (*al-shakl*), and distinguishes shape from *hay'a*, which, in this section, is viewed as a kind of positional quality (*al-waḍ'*).²³⁰ He states there that the *hay'a* is that which obtains by reason of the relation between the parts of *x* and things that are external to *x*, in addition to the relations that hold between the parts themselves. Here Rāzī is concerned primarily with material parts and not conceptual parts, but it seems to carry epistemological ramifications similar to the structuring property. Nevertheless, *waḍ'* and *hay'a* are not considered parts of the conception of a thing, i.e., they are accidental qualities or relations. By contrast, Rāzī wants to assign a certain epistemological independence to *hay'a ijtīmā'iyya*. Below, I suggest what he might have in mind more precisely. It should be noted here that because *I*, or *hay'a ijtīmā'iyya*, is a perceptible quality of the object of knowledge, there is no problem of the infinite regress of *I* (or *M*, which is the mode that applies to the parts prior to existence). That is, *I* is not a part or property that requires some ontological ground in extra-mental reality. In this way, Rāzī is also able to explain the unity of complex objects without appealing to metaphysical principles such as form and matter.

Indeed, let us return to how *hay'a ijtīmā'iyya* is used by Rāzī to respond to the objection to unity. Recall that an objector argued that there are no complex unities, since the attribute of unity would have to be a further part or property of the complex, leading ultimately to an infinite regress. Given the above discussion, Rāzī seems to be trying to find a middle ground between the austere indivisibilism of *kalām* and the ontological and

²³⁰ Rāzī, *Mabāḥith*, I, 536.

epistemological assumptions of Aristotelian essentialism. Indeed, if *hay'a ijtīmā'iyya* is a response to the objection to unity, it must be that the *unified structure* gives the parts, as Rāzī construes them, a certain perceptible unity. However, this is not to deny the possibility of assessing the ontological unity of complex quiddities, the denial of which is presumed in the premise of indivisiblism. When we examine how Rāzī applies the notion of “body”, we will see that he objects to the *kalām* definition of body as an indivisible part on the same grounds that he based his objections to the scientific definition of sensibles. That is, this particular *kalām* definition does not refer to the nominal usage of “body” but to some property, i.e., noumenon, which requires a deductive argument or proof. Recall that, previously, Rāzī said the deeper ontological relations between parts and the quiddity is assessed in *ḥikma*. His message, which is made consistently in the above analysis, is that those discussions fall properly in philosophy and not logic and that the logical terms should be neutral with respect to those considerations. In this sense, his discussion in logic is “analytic”. As will be clarified further in the next chapter, Rāzī’s analysis of definition attempts to proceed in a general manner that can address diverging approaches to definition (i.e., irrespective of epistemic assumptions of the Aristotelians). It is telling that subsequent to his discussion of *hay'a ijtīmā'iyya* in the *Nihāya*, which proceeds in the general manner referred to, he states, “The framing (*tawjīh*) of the problem (*al-ishkāl*) in the terminology (*‘ibāra*) of the logicians (*manṭiqiyyīn*) is to say...”²³¹ Rāzī goes on to “frame” the problem in terms of differentia and genus. This supports the suggestion noted above regarding Rāzī’s practice in his own analysis of logic, particularly when it comes to the foundational issues of parts of the quiddity, to

²³¹ Rāzī, *Nihāya*, fol. 4b.

strip the logical analysis of terminology, such as *dhātī*, *‘araḍī*, *faṣl*, *jins* and so on. That is, such terms evoke semantic content that might confuse his more analytic approach to problems. This point will be further assessed in the next chapter.

Returning to our discussion of the objection to unity, I suggested that Rāzī wants to preserve the unity of the parts without committing himself to Aristotelian or any other kind of essentialism. Given the above analysis, *I* (i.e., *al-hay’a al-ijtimā’iyya*) might be construed as the property of being a unified perceptible form or structure, i.e., the *structuring property* of the parts of a complex. As we have seen, the universal, in Rāzī’s view, is not construed as an essence or quiddity composed of constitutive parts. Rather, it is a sort of structured unity that can be composed of internal or inhering properties. This notion is what I have labeled *structured universal*, though what precisely such a universal might be will be clarified below.

It should be noted here that a relation can be drawn between his discussion of *hay’a ijtimā’iyya* and Rāzī’s discussion of the *common factor* in **T7** and **T8**. Rāzī had stated in **T8**, “We know *necessarily* (*bi-l-ḍarūra*) that the individuals of a particular species share in the nature of the species and that each one [of the individuals] differs from another [individual or other things] by its distinctness (*khuṣūṣiyyatihi*). This common factor (*qadr mushtarak*) is the universal.” Here Rāzī identifies the universal with the common factor which, it will be recalled, was meant to oppose the view that the universal represented the form of things in the mind. Rāzī’s psychological point – that we know the common factor *necessarily* – was aimed against the Avicennan view of the acquisition of conceptions, which is coupled with the view that the true forms, or objects of definition, are those that are abstracted by the higher faculties and stripped of their

accidental qualities. Rāzī's point here seems to be that the common factor is those immediate, or ordinary, concepts of composite sensibles. His view of the structured universal consists of a mereological analysis of what our conception of the ordinary composite universal is, i.e., the common factor. As suggested, since *I* cannot be a further part or property that is in the definiens, *I* cannot be acquired through division or definition, that is, *I* is not identified by a real differentia. Construed thus, the response to the objection to unity seems to be straightforward: unity is a basic cognitive fact of such complexes and any metaphysical question regarding the unity of parts in a quiddity is the domain of philosophy proper. Of course, Rāzī does not think this settles the metaphysical question, but his answer initially seems to be disappointing only because he is constrained by his own logical programme. We will see in more detail how all this is borne out in the case examples. But, to anticipate, if the correlation between the common factor and the structured universal stands, we should expect that structured universals correspond simply to our general concepts picked out by our ordinary language terms. This, as the case examples will show, is precisely what Rāzī has in mind.

But before turning to the case examples, let us flesh out some philosophical implications of a number of notions that the above analysis has been employing throughout, particularly in the context of mereology and universals. Let us distinguish between three broad types of wholes that are sometimes distinguished in the philosophical literature on universals: aggregates, related wholes, and Aristotelian substances. I begin with the first two and will return later to substances in the Aristotelian

sense. An aggregate is simply the sum of individuals.²³² The aggregate of books, for example, is simply the sum of individual books irrespective of how they might be catalogued or stacked. The collection of books in a catalogue, however, differs from the *aggregate* of the very same books, in that collection depends in part on it being organized under, say, the Dewey decimal system. The collection is a related whole. That is, the collection is dependent on the parts of the aggregate but it possesses additional properties, such as being subject to call number searches or organized in stacks according to a specified order. The aggregate of books however does not possess such properties, since the identity of the aggregate does not depend on relations that belong to, or obtain between, the individual members of the aggregate.

If we return to Rāzī's notion of *structured universals*, it would seem that Rāzī's complex quiddities are not simply aggregates, since, as stated, the true parts of *x* without the organizing property *I* is simply an aggregate or composite and not the *complex* quiddity or collection of parts (*majmū' al-ajzā'*). Indeed, if Rāzī's complex is simply an aggregate, he would agree with the first objector who denied that it possesses unity. But structured universals *seem* to differ from related wholes as well, specifically in that structured universals possess – or more precisely permit – more structure or complexity than related wholes do. The relation in a related whole applies to pre-constituted individuals, i.e., what Rāzī would deem proper parts. But, as we saw, in addition to the proper parts, Rāzī allows for accidental or inhering properties. Now, the relations that might hold between proper and accidental parts and the structuring property can be

²³² I will gloss over whether the aggregate is a class distinguished from the individuals taken together or not. The discussion draws on the analysis of universals by Armstrong and Scaltas. See Theodore Scaltas, *Substances and Universals in Aristotle's Metaphysics* (Ithaca: Cornell University Press, 1994), 28-35; D.M. Armstrong, *Universals and Scientific Realism: A Theory of Universals* (Cambridge: Cambridge University Press, 1980), 61-94.

significantly more complicated. For example, a complex might not obtain simply by relating individuals to spatio-temporal patterns. As such, Rāzī thinks that a *hay'a* *ijtimā'iyya* possesses a real property over and above *hay'a* simpliciter. Rāzī may have envisioned, for example, that properties, over and above the relations holding between individuals, are required in the case of certain complexes. Here, the book collection in fact makes for a better example of a *structured universal* than a related whole. That is, if *I* is the property of being structured or organized under the Dewey decimal system, then in addition to the individual physical books there may need to obtain certain accidental properties that obtain in the collection as a whole. An example of such a property is that the books treat subjects that fall under one of the Dewey-decimal classes of knowledge (i.e., language, arts, history, technology, and so on). The set of Dewey-decimal classes, or accidental properties generally, can be viewed as belonging to the collection as a constituted whole. But if a book is added to the collection that falls outside the given classes, the collection is no longer a collection organizable by the same property – i.e., the ability to be catalogued by the Dewey decimal system – and is thus a different collection.

I have risked over-extending the metaphor of the book collection because I think it underscores an important insight that is borne out in subsequent chapters and is one that likely motivates Rāzī's complication of the matter. Specifically, the complication has to do with relations that hold between noumenal and phenomenal parts. That is, Rāzī need not rule out the possibility that between the inhering properties (i.e., being about history or art) and the proper parts (i.e., being a book authored by x and entitled y) certain necessary relations may hold, as the Aristotelian asserts. But he envisions a collection of

items where identifying the proper parts as essential to the quiddity and proper accidents of a thing may be in many cases beyond our grasp. Recall that in **T1** Rāzī contrasts knowledge of “named things” with the apprehension of quiddities that are “real in themselves” and expresses doubts about our ability to grasp the real quiddities. In light of **T1**, Rāzī’s position here can be understood as stating that, in most cases, our knowledge of sensible reality falls short of grasping such essential properties. It is for this reason that even though Rāzī posits both proper parts and accidental parts, the latter is what he uses exclusively in referring to the predicables, specifically the differentia. In the next chapter, we will see that Rāzī effaces the distinction between differentia and propria, rendering all properties effectively external to the quiddity. As such, the inhering property needs to be taken in a broad sense since they may be something like Aristotelian propria; though, Rāzī will argue that a *de re* necessity cannot be affirmed of such properties. This, as we will see, is why he does not use the Aristotelian terms of differentia or proprium, but will rather prefer to use *lawāzim*.

If I might pursue the example further: Rāzī seems to envision a collection of books with lost titles and authors, i.e., the constitutive parts, so that we have no access to the “essence” of the individual books that make up the collection. That is, we do not know its author, publication date and so forth (all of which I am construing for the purpose of the example as equivalent to the constitutive parts of an individual book). That is, we do not know that the fact that the collection treats biology is because some author trained in science undertook the task of writing the parts of the collection that treat biology. Only real knowledge of the “constitutive properties”, say, knowledge of the author of a specific book, would tell us the constituted essence of the collection. Indeed,

here we only say that the collection (and not parts of the collection) treats biology because we do not even know how the collection might originally be divided; that is, we have no knowledge of the order of its *internal complexity*.

Turning to Aristotelian substances, the basic difference between substances and Rāzī's structured universals is underscored in the above. That is, the parts of Aristotelian substances, as set out in definitions, not only identify parts but provide a full explanation of what the substance is, i.e., why it is the substance. And as such, scientific definitions or proofs will show why the proper accidents are necessarily attributes of that substance, as we have discussed in the preliminary discussion.

Let us turn now to Rāzī's philosophical discussion. Rāzī's theory of universals as structured universals is not only suggested in his analysis of the Aristotelian predicables in logic, but also in his philosophical discussion of specific complex entities. We saw that he applied his theory to the interpretation of the differentia, so that the differentia, in Rāzī's *madhhab*, is an attribute (*ṣifa*) and not necessarily a constitutive part. We will return to the analysis of complexes in logic, expanding particularly on the status of the Aristotelian categories, but I provide, here, a few examples from his philosophical discussion, which parallel my example of the book collection as applied to aggregates, related wholes, structured universals and substances. The examples serve to clarify a number of points discussed above regarding Rāzī's notion of complexes.

Given our analysis of Rāzī's views in the previous two chapters, "body" (*jism*) should fall into the category of a complex quiddity. It certainly does not fall into his list of immediate sensibles or internal psychological states. So we shall begin with this assumption. In his philosophical discussion of body in the *Mulakhkhaṣ*, *Mabāḥith*, and

other works, Rāzī distinguishes between general definitions or descriptions of body according to the Aristotelian version and those, he states, offered by “some people”. The latter includes descriptions such as magnitude (*miqdār*), space-occupation (*taḥayyuz*) and extension (i.e., that which has length, breadth and depth).²³³ The philosophers’ definition that Rāzī provides is: “the substance of which three dimensions intersecting at right angles can be posited (*f-r-d*) as possibly [obtaining]”.²³⁴ I shall gloss over a number of intricacies in Rāzī’s handling of the various definitions, but it should be noted that the definitions, in Rāzī’s view, should be taken as applying to the same object or definiendum, which specifically is the corporeal or sensible body, i.e., that of which corporeality (*al-jismiyya*) is predicated.²³⁵ In II.2 of the *Ilāhiyyāt*, Avicenna seeks to provide the real definition of body (*taḥqīquhu wa-taʿrīfuḥu*), arguing that the general definition of body is not “in reality” what the body is (i.e., body insofar as it is body). He states that corporeality (*al-jismiyya*) “in reality (*bi-l-ḥaqīqa*) is the form of continuity in which it is possible to posit (*f-r-d*) three dimensions.”²³⁶ This point is a qualification of his previous formulation that the body is a single continuous substance (*jawhar*).²³⁷

²³³ Rāzī suggests that this group, some of whom are undoubtedly *mutakallimūn*, do not distinguish between that which *has* length, breadth, and depth, on the one hand, and that which *is* long, broad, and deep (*al-tawīl al-ʿarīḍ al-ʿamīq*), on the other. For example, they do not seem to address problems in identifying magnitude with body, such a body being indeterminate with regard to actual three-dimensional magnitudes. Following his approach to definitions, Rāzī defines body as that which possesses such attributes. Avicenna cites these definitions as well in *Metaphysics*, II, 2, 48. See *Mulakhkhaṣ*, fol. 113a-113b; *Mabāḥith*, II, 9, 12; *Sharḥ al-Ishārāt*, II, 35.

²³⁴ Rāzī tweaks the definition in a number of ways. Rāzī seems to be wrestling with the consequences of Avicenna’s hard distinctions between receptivity (*al-qābiliyya*), three-dimensionality and corporeal form. Rāzī states that Avicenna views “possibility” here as a general one-sided possibility (*al-imkān al-ʿāmm*), so that possibility does not entail non-necessity. This Rāzī states is to allow for the necessary relation that the property of three-dimensionality holds of celestial bodies. See *Mulakhkhaṣ*, fol. 113a-113b; *Mabāḥith*, vol. 2, 12; *Sharḥ al-Ishārāt*, vol. 2, 5.

²³⁵ *Al-jismiyya*, or corporeity, is referred here generally to the concept of “being a body” which he distinguishes from Avicenna’s use of it as referring sometimes to the corporeal form (*al-ṣūra al-jismiyya*).

²³⁶ Avicenna, *Metaphysics*, II, 2, 51. For a full discussion of Avicenna’s theory of corporeity, see A. D. Stone, “Simplicius and Avicenna on the Essential Corporeity of Material Substance,” in *Aspects of Avicenna*, ed. Robert Wisnovsky (Princeton: Markus Wiener, 2001), 73–130. For an important analysis and

Returning to Rāzī's discussion, he states that the properties of extension (*ḥajm*) or space-location (*taḥayyuz*), i.e., those in the general or non-Aristotelian definition, are known immediately by perception (*mushāhada*), while the properties in the real definition require proof, or at least are more obscure (*akhfā*) than the object of definition. Significantly, Rāzī states that this is the case only if we take the object of definition to be the sensible body referred to by our normal usage of "body", which refers to the universal of the sensible item perceived by the senses or observation (*al-ḥaqīqa al-mushār ilayhā bi-l-mushāhada*).²³⁸ Avicenna's definition is not simply introducing a new technical sense of body but providing the real definition of what our concept of the sensible body actually is, i.e., the inner-reality (*bi-l-ḥaqīqa*) or complete essence of body.²³⁹ Indeed, seemingly in direct response to Avicenna's claim that the definition provides the knowledge of the inner-reality or complete conception of body, Rāzī replies, "This definition is a description (*rasm*) and does not provide a complete conception (*kamāl al-taṣawwur*)..."²⁴⁰ *Kamāl al-taṣawwur*, not incidentally, invokes the condition that

Avicenna states in *Demonstration* is required of real definitions, against those who fail to

clarification of aspects of Avicenna's view of body, see Jon McGinnis, "A Penetrating Question in the History of Ideas: Space, Dimensionality and Interpenetration in the Thought of Avicenna," *Arabic Sciences and Philosophy*, 16 (2006), 47-69.

²³⁷ Rāzī thus constructs the full definition with "substance" included as the genus. Indeed, in II.1, Avicenna includes body among the five kinds of substances (i.e., in addition to form, matter, soul and intellect). This is significant because it involves an important principle that Rāzī draws on in nearly all his philosophical works, which I omit in the discussion here. The principle is that "substance" is not predicated of a thing as a genus but as a concomitant (*lawāzīm*), which is discussed in Chapters 4 and 5. But this is now an obvious consequence of Rāzī's epistemological and logical programme, as established in the previous analysis.

²³⁸ Chapter 6 will clarify why Rāzī refers specifically to sight or visual observation when discussing knowledge of complex sensible things.

²³⁹ See especially in II.2 paragraphs 9 and 12. Incidentally, it might be noted that, in commenting on the Aristotelian position, Rāzī attacks those who think that prime matter posits a thing or existent beyond the sensible body. Rather, Rāzī states the prime matter simply grounds the distinction between the essence of the sensible body and the properties or forms that occur externally to it. See, *Mulakhkhaṣ*, fol. 119b.

²⁴⁰ The response is precisely to the claim: "Conception of what body in itself (*li-dhātihī*) is [known] immediately and this [real] definition provides [knowledge of] its inner-reality." This involves points clarified below. See Rāzī, *Mulakhkhaṣ*, fol. 113b. The same point is made, and expanded on, in the other works; see *Mabāḥith*, vol. 2, 12-15; *Sharḥ al-Ishārāt*, vol. 2, 6.

underscore the “completeness” of our conception of an essence, as discussed above. In another passage, Rāzī highlights the epistemological assumptions that have been worrying him in logic:

T15

Certainly [the sensible] body is a composite of genus and differentia in one respect (*bi-iʿtibār*) and of matter and form in another respect, **but, as for us, since we do not grasp (*nashʿur*) the essences (*ḥaqāʾiq*) of those constitutive parts (*muqawwimāt*), we will doubtless define (*ʿarrafnā*) “body” by its effects (*bi-āthārihi*) and concomitant attributes (*bi-lawāzimihī*).²⁴¹**

This passage directly invokes Rāzī’s analytic epistemological programme that he sets out in the logic section of his early works. According to this programme, “body” may be viewed as constituted of noumenal parts, namely, matter and form (which correspond, in Avicenna’s interpretation, to the genus and differentia of the definition) on the basis of the Aristotelian system. However, “as for us”, as he states, we examine only the phenomenal properties. In the next chapter, we will discuss in more detail what he means by effects (*āthār*) and concomitants (*lawāzim*) and how they apply to a quiddity in a manner that is not based on a *de re* relation of necessity.

In **T15**, Rāzī makes the point I attempted to illustrate with the example of the book collection. His discussion underscores the epistemological rift dividing internal or constitutive parts (such as differentia), on the one hand, and external properties, on the other. However, in **T15**, Rāzī underscores a less obvious point regarding structured

²⁴¹ *Mabāḥith*, II, 15. Rāzī expands on this with points that will be discussed below, particularly his notion that substance is not predicated of a thing as a genus.

universals. Recall that our formulation was complicated by the fact that the relation between parts of x , given by $P(x)$, and the inhering properties of x , given by $I(x)$, was ambiguous, particularly when taking property I into consideration. Rāzī confirms that he does not want to preclude any analysis of noumenal parts or any relations that may hold between noumenal parts and inhering properties. His statement there suggests that actual properties such as ‘extension’ (in actuality) may or may not be due to, or inhere in, some noumenal property that is more remote (*akhfā*) than “extension”, like receptivity or continuity. However, the actuality of such a relation between the noumenal and phenomenal properties needs to be assessed and given a technical signification, distinct from the concept signified by our ordinary term. This would especially be the case if there is no real or knowable relation between our pre-scientific notion of body and the scientific noumenal notion. That Rāzī is sensitive to this, and does not prejudge the matter, is probably due to his awareness that most philosophical and scientific works build on real definitions that presume to provide knowledge of noumenal properties.

Rāzī’s statement in **T15** underscores the point that the fundamental divide between him and the Aristotelian approach is the epistemological problem of distinguishing phenomena from noumena. In his philosophical discussion, Rāzī states that the Aristotelian view that magnitude is distinct from body is based on the prior rejection of indivisibles, since indivisibles which constitute bodies possess determinate unit-magnitudes, whereas a continuous body can have differing determinations of magnitude. However, Rāzī recognizes that this is a dispute over one noumenal view of the ultimate constituents of the phenomenal body versus another, viz., *kalām* indivisibilism versus

Aristotelianhylomorphism. As such, Rāzī sees the *mutakallimūn* as positing entities just as noumenal as the Aristotelians' form and matter.

Rāzī frames the discussion of *kalām* indivisibles in the following terms. After stating that a number of responses can be produced for his initial objections to the Aristotelian definition of body, Rāzī says,

T16

But the primary [response] is that the quiddity of body is apprehended by a primary conception (*taṣawwur^{an} awwaliyy^{an}*) since everyone knows necessarily of the extended (*kathīf*) body that it is space-occupying and [has] extension (*ḥajm*) and [everyone] distinguishes between that and what is not such. And you have come to know that what is such [i.e., immediately known] one need not be concerned with (*yashtaghil*) by defining it. Yes, the one who affirms that body is composed of indivisible parts does not explain body by space-occupation because one [indivisible] part is [according to him] space-occupying though not a body. Rather a body according to him is a name for a specified number of those indivisible parts composed in a specific manner, which is in reality a linguistic question (*baḥth lughawī*).²⁴²

The terminological problem centers on the divergence of the *mutakallimūn*'s use of "body" from the common usage. That is, body as construed by the *mutakallimūn* depends on affirming the constituent parts of body, namely indivisibles, whereas the common usage applies to extension (or space-occupation), which is an immediately observed property. However, the *mutakallimūn* would certainly insist that the body constituted by indivisibles is the sensible that is picked out by our word "body". However, the property

²⁴² Rāzī, *Mulakhkhaṣ*, fol. 113b.

of extension, which Rāzī considers is the structured universal that applies to the observed body, is explained in the *mutakallimūn*'s view by a more basic noumenal constituent of the body, i.e., the indivisible part. So the problem, once again, amounts to a distinction between noumena and phenomena.

Indeed, in his philosophical works, Rāzī believes that proofs adduced for either *kalām* indivisibilism or Aristotelian hylomorphism are ultimately inconclusive and thus fall short of demonstrative certainty.²⁴³ As such, Rāzī attempts to devise a third way of analyzing the problem that takes the phenomenal body as the substrate (*al-mawrid*) on which the attributes of unity and multiplicity occur. That is, the properties of continuity and divisibility of body are explained not by internal constituents but by the phenomenal qualities of unity and multiplicity.²⁴⁴ Rāzī's position also involves his views on individuation, unity and quantity, which I shall not investigate here. Rāzī's position in the debate between indivisibilism and hylomorphism is one that later writers would draw on.²⁴⁵ In other works, where he focuses on comparing the strengths and weakness of Aristotelian hylomorphism vis-à-vis *kalām* indivisibilism, Rāzī does lean towards that latter view. Crucially, however, he states that such proofs are built on numerous and

²⁴³ In later philosophical works, such as *al-Maṭālib al-ʿĀliya*, Rāzī seems to endorse a version of *kalām* atomism. There, however it is clear that the proofs adduced in favour of this version seem more probable than the alternative. The sheer quantity and variety of proofs and counter-arguments he provides for the indivisible part is telling, particularly in contrast to other positions. There is, in his view, "probabilistic" force to the atomistic position. In some places, it seems that the epistemic threshold is lower in that he says atomism entails fewer absurdities or outrageous claims than hylomorphism. In his discussion of body in the *Maṭālib*, Rāzī very clearly follows the epistemological programme set out in the early works. See Rāzī, *Maṭālib*, 6, 127-129. It should also be noted that, even though Rāzī tends toward indivisibilism in this work, he makes clear his tentativeness in affirming it and the problems that require resolution if one does endorse it. For example, he states that the science of geometry (*handasa*), from beginning to end, disproves the indivisible part (*al-jawhar al-fard*), so whoever affirms (*athbata*) the indivisible part must denounce the sciences of geometry. It is clear, here, that the rejection of geometry, in Rāzī's eyes, is a problem and not simply a position one must uphold. See *Maṭālib*, 6, 166.

²⁴⁴ *Mulakhkhaṣ*, fol.119a; *Muḥaṣṣal*, 119.

²⁴⁵ See for example Shams al-Dīn Maḥmūd al-Iṣfahānī, *Maṭālib al-Anẓār ʿalā Ṭawālī al-Anwār* (Beirut: Dār al-Kutub, n.d.), 111-112.

corroborating deductive proofs, which gives indivisibilism a certain probabilistic force.²⁴⁶

What is significant here is the extent to which his epistemological programme informs his overall philosophical approach, though a more comprehensive analysis of the application of his logical programme has yet to be undertaken. Below, I argue that the very structure of his philosophical works, especially the *Mabāḥith* and the *Mulakhkhaṣ*, is organized in accordance with his logically informed philosophical approach.

One of the most important results entailed by our analysis of Rāzī's structured universals concerns the theory of *per se* predication and demonstrative science, as discussed in the preliminary analysis. Rāzī's structured universal is grounded in our pre-scientific knowledge of sensible complexes. Moreover, his epistemological and logical programme precludes any definitional method through which one might acquire knowledge of the *nature* of the structured universal. That is to say, what fundamentally constitutes such universals cannot be discovered by means of the definitional tools of logic. Therefore, a particular science or philosophical domain cannot base itself on assumed principles obtained by such logical methods. With this in mind, Rāzī redefines the nature of the predicates (i.e., the differentia and genus) that are employed in *per se* predication and demonstration. On Rāzī's account, the differentia is not a differentia, i.e., a constitutive part, but a property, which may even be external to the quiddity of a thing. In this way, Rāzī attempts to undermine the basis of Aristotelian demonstrative science. However, further elements of his view of structured universals and predication remain to be assessed. In the next chapter, we shall investigate Rāzī's critique of real definitions and his assertion of nominal definitions. There, some further aspects of Rāzī's notion of

²⁴⁶ See especially his lengthy discussion in *Maṭālib*, 6, 5-216. As noted above, he is tentative in endorsing indivisibilism in this work.

structured universals will be clarified, particularly as it concerns the external properties (specifically, *lawāzim* and *āthār*) of such universals and the role they play in definitions. Moreover, the discussion in Chapter 4 will provide further details on Rāzī's view of the Aristotelian theory of demonstrative science. The analysis will show that Rāzī focuses on a central notion in the *Posterior Analytics*'s theory of knowledge, namely, the principles on which the *de re* necessity of predication is based.

Chapter 3

Against Real Definitions and *De Re* Necessity

Our analysis in the preceding chapters paves the way to our assessment of Rāzī's critique of real definitions. Rāzī provides a systematic division of the kinds of definitions (*dabt anwā^c al-ta^crīfāt*) in the *Nihāya* and the *Mulakhkhaṣ*. In the latter work, he introduces his section on definitions with a more concise version of the division. As noted in the last chapter, Rāzī's investigation of the parts of the definition remains at the broadest level of analysis. That is, it avoids presupposing a particular approach to definition, as indicated by his omission of the Aristotelian names of the predicables and his use of general terms such as internal/external and composite/simple to refer to quiddities and their properties. His approach to the division of definitions will proceed along the same lines, though we will see that the consequences are much more apparent here. Though he specifically divides off the kinds of definitions we labeled "informative", which applied to the Aristotelian division of definitions as interpreted by Avicenna, Rāzī will not specify the parts of a definition as genus or differentia. Rather, he considers separately the relation of the individual parts to the nature of the quiddity. As such, his division will include possibilities that are not included in Avicenna's division. Rāzī, here, attempts to provide an exhaustive list of the types of informative definitions as logically entailed by his division, even if the particular type under consideration has no philosophical use or has not been recognized or assigned a name. Still, Rāzī provides

clear indications as to how such a division maps onto the Aristotelian system of definition.²⁴⁷

It is important to note that Rāzī's division is meant to be exhaustive with respect to informative definitions, that is, definitions of a certain non-trivial kind, as discussed in our preliminary analysis. In particular, they are definitions that provide complete or partial knowledge about a thing that is not already given in our ordinary or pre-scientific conception of that thing.²⁴⁸ As Avicenna states, informative or "scientific" definitions are those through which one "acquires" (*yaktasib*) conceptions. Such conceptions are the relevant kinds of conceptions for philosophical discourse or, more specifically, demonstrative science. Rāzī finds that not all definitions are informative and certain types of definitions fall outside of this division. The specific kind of definitions that is endorsed by Rāzī, called "nominal definitions", falls outside of this division. In fact, the entire division is, as we will see, an argument against informative definitions, an argument that, in Rāzī's view, leaves nominal definitions as the only viable type. However, Rāzī wants to distinguish between nominal definitions and lexical definitions, a point already noted above (see especially **T2**). Following our discussion of Rāzī's division and critique of informative definitions, I will attempt to work out how and why Rāzī distinguishes between the nominal and lexical definitions.

²⁴⁷ As noted above, in the *Nihāya*, Rāzī indicates this by interpreting a problem "according to the phrasing of the logicians" (*'alā 'ibārat al-mantiqiyyīn*) and refers to the parts of the quiddity as genus and differentia. Moreover, he calls the Aristotelian definitions "real definitions" (*al-ḥadd al-ḥaqīqī*).

²⁴⁸ That it is meant to be exhaustive is indicated in him raising a counter-example to the completeness of his division, namely, definition by analogy (*al-mithāl*). He argues that analogies are similar to the definiendum in certain respects and different in others. Analogies are thus not included in the division, as a kind of definition, if we simply consider that they posit similarities. But if we consider that analogies distinguish an item, they can be viewed as similar to the distinguishing kind of definitions, i.e., type (2) in the division below.

Rāzī follows up his analysis of the kinds of definitions with arguments for rejecting all the possibilities set out by his categorization. He draws out the problematic implication that follows from his division. Below I provide a schematized outline of his critique that follows his division. Ultimately, Rāzī's argument aims to show that informative definitions only work if we make certain epistemological assumptions regarding conceptions and the manner in which such conceptions are acquired. His critique of informative definitions leads him to assert his own view of nominal definitions, which he defines as "making precise what a name signifies in a general manner". We had encountered this phrase in the previous chapter when discussing Avicenna's views in *Demonstration*, which corresponds to a kind of definition preliminary to scientific investigation. However, Avicenna does not distinguish between a nominal definition and a lexical definition.²⁴⁹

We begin with Rāzī's division of informative definitions according to the components of the definiens as outlined in the *Mulakhkhaṣ* and the *Nihāya* (the *Nihāya* provides some additional details, which will be noted). The arrows indicate the name and status accorded to each kind of definition. Rāzī states that the definition of a quiddity, *x*, includes items (*umūr*) that are:

(1) internal items to *x*, which divides into definitions that include:

- (a) all internal parts of *x* $\Rightarrow$ real definition/*ḥadd tāmm* (indisputably);
- (b) some internal parts of *x*:

²⁴⁹ I have not found any sources in which Avicenna explicitly distinguishes between nominal definitions (which he refers to in *Demonstration*) and lexical definitions. It seems that the two are the same in his view. In any case, even if he does distinguish between the two, it is clear that Avicenna does not find the distinction relevant to the philosophical analysis of definitions as does Rāzī or, at the least, not in the way Rāzī finds the distinction relevant to his critique of real definitions. Avicenna does not raise the distinction in the relevant discussions in logic or philosophy as far as I can see.

- (i) that distinguish x from what is not x $\Rightarrow$ whether this is *ḥadd* or not is disputable;
- (ii) does not distinguish x from what is not x $\Rightarrow$ this is indisputably not *ḥadd*;

(2) items external to x $\Rightarrow$ *rasm nāqīṣ* (incomplete description);

Conditions:

- i. For the definiens to be co-extensive (*musāwⁱⁿ*) with the instances of x in the existence and non-existence of x.²⁵⁰ That is, the external item applies to x when x exists and does not apply to x when x does not exist.
- ii. For the definiens not to obtain for anything other than x.
- iii. For the definiens to be more apparent to the mind than the definiendum.

(3) both internal and external items of x:

(a) the internal and external parts are not co-extensive:

- (i) the internal element has a larger extension than the external $\Rightarrow$ *rasm tāmm* (complete description).
- (ii) the external part has a larger extension $\Rightarrow$ no name.

(b) the internal and external items are co-extensive $\Rightarrow$ no name.

The *Nihāya* discusses a number of further consequences that can be drawn from the division. But before we address these additional points, let us quickly map the above

²⁵⁰ In the *Nihāya*: “For it to be impossible that the definiens does not obtain for all instances of x.”

categories onto the corresponding kinds of definition in Avicenna's division of definitions, which was examined in the preliminary discussion.

It was noted that Avicenna's division of definitions in the first chapter of *Demonstration* was preliminary, and that his more substantive analysis comes later, especially in IV.4. Although a comparison of Avicenna's and Rāzī's divisions will be somewhat superficial, I believe it does underscore some basic points relevant to the following analysis.²⁵¹ Rāzī's (1a), or complete definition (*ḥadd tāmm*), corresponds to (Ia) in Avicenna's division, which the latter labels complete or real definition (*ḥadd tāmm* or *ḥaqīqī*). (1b.i) corresponds to (Ib), which Avicenna labels deficient or incomplete definition (*ḥadd tāmm*). (1b.ii) has no equivalent in Avicenna's division since it is not a definition. Rāzī includes (1b.ii) to ensure that his division is complete. Rāzī's (2) corresponds to Avicenna's (IIb), which is labeled incomplete description (*rasm nāqīṣ*) by both authors. It might be noted that the conditions that Rāzī applies to (2) are important to his subsequent critique as they scrutinize the necessity involved in such definitions. (3a.i) is equivalent to (IIa), which is an incomplete description (*rasm tāmm*) in both authors. (3a.ii) and (3b) have no equivalent in Avicenna and, again, are mentioned by Rāzī for completeness.

The following analysis shows the rationale behind Rāzī's division and how it sets up his "analytic" critique, but a few telling divergences between Rāzī's division and that of Avicenna should be noted. Rāzī's primary criteria of division is, first, whether a property is an internal or external part and, second (if it is not internal), how the property

²⁵¹ Only in I.1 of *Demonstration* does Avicenna discuss the relation of the kinds of definitions to the internal and external parts of the definiendum and the relation between defining and distinguishing (*tamyīz*). In later chapters, Avicenna examines more details of the Aristotelian theory, specifically on the relation of the kinds of definition to demonstrations, to the four causes, and to ontological simplicity.

applies to the definiendum (i.e., always, necessarily, etc.).²⁵² Rāzī then draws out what is entailed *completely* by the division, whether or not the traditional Aristotelian categories of definition apply. What is omitted in Rāzī’s discussion is any reference to mental forms, the method of division, and the Aristotelian structure of universals. It will be recalled that Avicenna’s division, by contrast, begins with the levels of “acquired conception” (*taṣawwur muktasab*) and his division of definitions is intended to correspond to the various levels of scientific knowledge. His language draws heavily on the notion of mental forms; for example, he states that a complete conception, which is afforded by a complete real definition, is an “intelligible form that corresponds to the (externally) existing form”.²⁵³ Moreover, Avicenna distinguishes between a complete real definition that simply distinguishes, i.e., (Ia), and a complete real definition that entails “all the essential parts so that nothing is excluded”, which we labeled (Ia’). To illustrate his distinction, Avicenna refers to the definition of “man” as “a corporeal, rational, mortal [thing]”. He states that in this case the definition “overlooks” (*akhalla*) the *intermediary* differentiae (e.g., the properties entailed by “animal” are omitted). Here, Avicenna presumes the method of division that does not simply assess the whole and its parts but presumes a hierarchy of universals as discussed in the preliminary discussion. This stands in stark contrast to Rāzī’s division, which examines definitions propositionally or simply as statements. The relation of the parts to the object of definition is viewed as a given and not discovered or “acquired” through any specific method, like division. As such, Rāzī does not distinguish between the causal roles of parts, so that a certain set of parts has

²⁵² As well, the question of whether such parts are complete or incomplete and whether they “distinguish” (*tamyīz*) is considered, but are subordinated to the first two principles.

²⁵³ Avicenna, *Demonstration*, 4. See preliminary discussion above as well, pp. 24-29.

distinct causal features from another (e.g., the differentia as being *the* constitutive part and as existentiating other intermediary properties entailed by the genus). Rāzī is, of course, justified in viewing definitions in this way since he has already noted and argue why he does not accept the epistemic assumptions in the Aristotelian theory. His “analytic” division and critique is aimed to show that, without those methodological and psychological assumptions, the notion that scientific or informative definitions can afford non-trivial knowledge cannot be defended. The following analysis will fill out the details of the general points mentioned above.

Turning now to the additional points that Rāzī raises in the *Nihāya*, he states that (1) and (3) apply only to composites, while (2) may apply to composites or simples. This follows from his definition of simples and complexes in the previous section, as discussed in Chapter 2. Further, he states that, with regard to cognitive content, type (1b.i) must be less informative than (1a). This follows necessarily from the nature of the division, since what includes all the parts of x will provide more cognitive content than that which provides anything less than all its parts. He calls (1a) the most complete (*atamm*) of all types and sub-types of definitions, while type (2) is the most general since it applies to both simples and complexes. Type (2) has no notable sub-types but there are several added conditions, namely points (i) to (iii). The conditions in effect exclude common accidents and are inclusive of propria and concomitants (*lawāzim*) of x, though there are some qualifications as well.

Type (3) is notable since only (3a.i) possesses a name and the latter clearly corresponds to Aristotelian complete descriptions, for example, “laughing animal” for “man”. In discussing (3), Rāzī explicitly calls the internal *dhātī* and external ‘*araḍī*. But

^ʿ*araḍī* here is not simply used in the sense of “accident” (*araḍ*), since an accident is not a part of the definition. Recall that in Avicenna’s division of definitions he refers to the same term for the properties of the description (^ʿ*araḍiyyāt*). However, as noted previously, Avicenna in his initial division of definitions remains vague about how the properties distinguish the object. That is, in I.1. of *Demonstration*, Avicenna was providing a general outline. Later, however, we saw that a more precise sense of ^ʿ*araḍī* emerges, namely *per se* accidents or *e2*-predicates (i.e., *al-ʿawāriḍ al-dhātiyya*). In (2), however, Rāzī clarifies what he means by the external or ^ʿ*araḍī* by setting out conditions (i) to (iii). Rāzī’s precise formulations of these conditions are particularly significant. However, let us first review Rāzī’s discussion and interpretation of Avicenna’s view of external properties, which constituted two chief kinds: *lawāzīm* and *per se* predicates.

First, recall that, in his commentary on Avicenna’s definitions of concomitants, i.e., *lawāzīm*, in *Sharḥ al-Ishārāt*, Rāzī raised a number of problems regarding the ambiguity of the term “accompany” (*yashabu*). Rāzī adds necessity to the definition (i.e., *wājib al-thubūt*) but is still dissatisfied, since the definition would still include a number of propositions whose predicates would not be considered *lawāzīm* by Avicenna. Rāzī provides the example that man is rational is a fact that is “inseparable” from the fact that donkeys bray. But Avicenna, as discussed, does not want to include such facts as *lawāzīm*. As such, Rāzī clarifies that Avicenna means something more specific by his definition, namely, that there is some causal connection to the internal parts of the quiddity that explains the necessity. I noted that the question that Rāzī raises concerns the distinction between a *de re* and *de dicto* reading of the necessity of the property. The necessity condition by itself would not exclude the class of propositions (such as, man is

rational *and* donkeys bray) that can be read as holding in virtue of a *de dicto* necessity. As such, Rāzī adds the qualification “in virtue of some thing reverting to it [i.e., the quiddity]” (*li-amrⁱⁿ ‘ā’idⁱⁿ ilayhi*) which was meant to tie the predicate to the essence of the subject, though the predicate is not a part of the subject. Similarly, in his assessment of *per se* accidents in *Sharḥ al-Ishārāt*, again operating in the Aristotelian framework, Rāzī attempts to clarify the interpretive problems involved in Aristotle’s definition of such *per se* predicates, viz., predicates in whose definition the subject is included.

It is significant that in the conditions for *‘araḍī* set out in (2), Rāzī does *not* add any qualification that would ground the necessity of the property in the essence of the subject. That is, the necessity of the external properties in this division can only be read, thus far, as holding on a *de dicto* reading. This is precisely what I mean by Rāzī’s “analytic” approach. The aim, that is, of Rāzī’s division is to strip the causal connections that hold between constituent and external properties, a connection that he believes can only be maintained by holding the problematic assumptions that his “epistemological” programme underscores. Recall that Rāzī in **T1** had stated his position that the conception of the differentia and genus as internal or constitutive parts is beyond our grasp with regard to most sensible things. That discussion is found in a chapter entitled, “How the five predicables are acquired (*iqtinās*)” of the *Mulakhkhaṣ*, which is the exact title of the larger section (*al-jumla al-ūlā*) in which the chapter is found, though in the first sub-section, i.e. *al-qism al-awwal*. Moreover, the chapter directly precedes Rāzī’s discussion of definitions and in particular his division of definitions outlined above, which begins the second sub-section (*al-qism al-thānī*) of the first part (*al-jumla al-ūlā*) of logic, which centers on conceptions and definitions. Indeed, the core of Rāzī’s epistemological points

regarding constitutive parts as well as mental forms are established in *al-qism al-awwal*, which precedes his division and analysis of definition. As such, Rāzī is attempting to demonstrate that, if one rejects epistemological and psychological assumptions that he finds problematic, one will find the notion of informative definitions as internally problematic as well. Indeed, if we turn now to his critique of informative definitions, the above hypothesis is borne out. That is, Rāzī will force the proponents of informative definitions to explicitly state whether the *‘araḍī* is to be read as holding of the subject in virtue of a *de re* or *de dicto* necessity.

First, however, it might be noted that Rāzī, in *al-qism al-awwal* of the *Mulakhkhaṣ* (specifically in his chapter on parts of the quiddity), discusses the various meanings of *dhātī*, not all of which are constitutive parts. He states for the eighth type that it is what is called in the *Book of Demonstration* (*Kitāb al-Burhān*) an essential accident (*‘araḍ dhātī*), as for example the predicate in “the animal is laughing”.²⁵⁴ That is, *per se* accidents are a specific type of external property that is posited in demonstrative science. However, given his epistemological rules, an “essential” *dhātī* is clearly not the sense that is relevant to his general logical analysis. Rather, *dhātī* here stands for a part or constituent of a quiddity, which corresponds to the notion of a part that Rāzī advances in the context of his view of structured universals, as discussed in Chapter 2. That is, a part, in Rāzī’s view, did not have the causal and necessary role that the Aristotelians gave it. In this light, Rāzī views the differentia of the quiddity, in his *madhhab*, as possibly being an attribute, a view that opposes the Aristotelian and Avicennan view of the differentia as having a necessary and causal role in the constitution of the quiddity. It can also be noted

²⁵⁴ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 47-48. As such, we noted that the logic of the *Mulakhkhaṣ* is different from the programme of the *Madkhal* which falls in the Isagoge tradition.

that, in the Aristotelian complete description, the differentiating element is the *per se* accident or proprium (*‘araḍī*), which has a smaller extension or, rather, is more specific than the essential part (*dhātī*), just as animal is broader than laughing. As such Rāzī adds the appropriate qualifications to (3a.i). However, Rāzī draws out the logical consequences of his division and arrives at (3a.ii) and (3b), which have no place in the Aristotelian system. This is because, as discussed previously, the Aristotelian method of definition presumes genera-lines (or the Porphyrian tree) where the genus is usually broader than the differentia or the differentiating property, particularly in the context of defining complex sensible entities. As such, the Aristotelian method fixes the scope of the extension of the first element in the definition (i.e., genus) with a view to the second (i.e., the differentia or proprium). Finally, it can be noted here that the conditions are formulated so as to allow type-(2) definitions to include even *kalām* approaches to definition, a point we shall return to shortly.²⁵⁵

Turning now to Rāzī’s critique, his argument against informative definitions follows directly from his division of definitions. The argument as set out in the *Mulakhkhaṣ* and the *Nihāya* can be summarized as follows:

- (I) Type-(1a) definitions are problematic since “all the parts of x” is:

²⁵⁵ That is, in the manner rendered by Rāzī, type (2) allows not only for Aristotelian descriptions but the kind of definitions used in *kalām* as well. For example, in defining the “indivisible part” (*al-jawhar al-fard*) by, say, space-occupation (*taḥayyuz*), the *mutakallimūn* are, in their view, not defining the thing with something internal to the indivisible part but with an attribute that follows in and of itself (*li-mā huwa ‘alayhi fī nafsihi*); that is, what R. Frank calls the “essential attribute” which follows in existence (*muqtaḍāt^{an}*) the “attribute of essence” which identifies the thing’s essence. I will not pursue this further here, but it can be noted that the attribute of essence (which seems to correspond to the Aristotelian constituent part of the essence or the essence itself) is not defined in any informative way. Thus they state: “When it is non-existent, the atom is specifically characterized by an attribute but is not manifest except through its occupying space, wherefore this [sc., its occupying space] must be entailed by the Attribute of Essence.” The translation is Frank’s. See his *Beings and Their Attributes*, 59, and especially chapters 2 to 4.

- (a) the same as x itself (*nafs al-māhiyya/ḥaqīqa*), which entails the definition of x by itself and which is thus circular;
- (b) internal to x, which is impossible since (by definition) all the parts of x are x and not a (proper) part of x;²⁵⁶
- (c) external to x, which is impossible because the collection of the parts of x would be something separate from x; if it is not separate from x, then it is a definition of type (2), i.e., a description and not (1a). [That is, “all the parts of x” would then be a concomitant of x].

(II) Type (1b.i) is impossible because if x is the sum of the parts in the definition plus the remaining parts, the parts in the definition would define all the parts of x; but the quiddity of each part is external to the quiddity of all the parts together, and so the definition would again be of type (2) and not (1b.i).

(III) **Type (2) is also problematic because the aim of this definition is either**

- (a) to define the specificity (*khuṣūṣiyya*) of the quiddity in which the external item occurs or (b) that on account of its being “some thing” from which that [concomitant] is entailed (*li-kawnihā malzūmat^{an} li-dhālika al-lāzim*);** but, in the former case, since different quiddities can have the same concomitant, this specificity cannot be inferred or proven and, in the latter, the concomitant is the given definiens and not the object of definition, so the definition will be circular.

²⁵⁶ That is, the aggregate of the parts of x is exactly x and so knowledge of all the parts of x is identical to x. The argument is that it cannot provide any non-trivial knowledge of x. Here, again, Rāzī presumes that the analysis proceeds analytically, so that external epistemological assumptions (such as the method of division or the notion of hierarchical universals) cannot provide any cognitive depth to the parts or circumvent the one-to-one relation between parts and the quiddity.

In the *Nihāya*, following the above argument, Rāzī concludes by stating:

T16

Know that the only escape (*khalāṣ*) from these puzzles (*shubuhāt*) is if we say that [real] definitions and descriptions are [simply] a matter of *making precise what a name signifies in a general way* (*tafṣīl mā dalla ‘alayhi al-ism bi-l-ijmāl*). But this entails another matter, which is that a distinction will no longer hold between a [real] definition (*ḥadd*) and description (*rasm*).²⁵⁷

We shall return to Rāzī’s conclusion after first assessing the argument.

The argument seems to make a clear omission. That is, the argument is aimed at all possibilities entailed by the division but no explicit argument is made against definition (3).²⁵⁸ Rāzī indicates in the *Nihāya* that his objections apply to descriptions in general, so that both complete and incomplete descriptions are ruled out.²⁵⁹ A closer look at the argument suggests that no further argument against definition (3) is in fact required. In particular, Rāzī’s argument (III), which is aimed at type-(2) definitions, seems to apply to definition (3), or at least (3a.i), as well. That is, the external items in definition (2), which constitute the differentiating property in the definition, as mentioned, are not

²⁵⁷ *Nihāya*, fol. 3b.

²⁵⁸ However, in the *Mulakhkhaṣ*, Rāzī states: “We do not accept the correctness of any of these divisions” (*lā nusallim ṣiḥḥat shay^{3m} min hādhihi al-aqsām*). Moreover, he attempts to meet objections that argue that the division overlooks certain kinds, like analogies as noted above, so that his argument is exhaustive.

²⁵⁹ *Nihāya*, fol. 3a.

simply accidents but concomitants. In the complete descriptions of (3a.i), the external properties are necessarily concomitants.²⁶⁰ In the case of (3a.i), the external property is the differentiating factor so an argument against it will in effect be an argument against the validity of the definition.

Argument (III) however needs clarification and is significant to our discussion above regarding Rāzī's (implicit) distinction between *de re* and *de dicto* necessity. As stated in the above summary, the argument distinguishes between two matters: (a) the specificity of a quiddity in which the external property occurs and (b) the attributions being a matter of entailment (*luzūm*). The latter, (b), requires some clarification. This point, I believe, is historically significant because it is meant to explicitly distinguish between two ways in which one might identify the external property that occurs to x. That is, Rāzī is explicitly making the distinction between *de re* and *de dicto* necessity or attribution. The text runs as follows:

T17

As for defining the essence (*al-ḥaqīqa*) by its concomitants (*bi-lawāzimihā*) [i.e., type (2) above], there is also a problem (*ishkāl*) regarding it [i.e., in addition to the problems raised against real definitions]; because if we say of a particular essence that it is that which entails such-and-such a concomitant (*yalzamuhā al-lāzim al-fulānī*), the thing we seek to know is either: [(i)] the specificity of that essence in itself

²⁶⁰ On the Aristotelian account, as noted, (3a.ii) is problematic because it is hard to see how a differentia or proprium that is divisive of the genus can possess a larger extension. It is not clear to me how such a definition might work on any account and it might be that Rāzī is simply following the logic of his division. But he does not seem to exclude it from being a definition or description as he does with (1b.ii). (3b) can in principle work on the Aristotelian account. But this involves the more complicated matter of mental or intentional versus real differentiae, which the Aristotelians allow in the case of, say, abstract entities. Rāzī's division seems to allow for such intentional properties.

(*khuṣūṣat tilka al-ḥaqīqa fī nafsihā*) or [(ii)] is on account of its being something from which that [concomitant] is entailed (*li-kawnihā malzūmatan li-dhālika al-lāzim*).²⁶¹

In the *Mulakhkhaṣ*, Rāzī states:

T18

As for defining the [quiddity] by external things [*al-umūr al-khārijīyya*], what is sought is either [(i)] the specificity of the quiddity (*al-māhiyya*) of which that external thing holds (^ʿ*araḍa*) or [(ii)] the definition of this much [*hādha al-qadr*], which is [to define that] it is some thing (*amr mā*) that has that external property (*lahu dhālika al-waṣf*).²⁶²

As pointed out above, Rāzī here is forcing the proponent of informative definitions to specify more precisely the notion of ^ʿ*araḍī* or *lāzim*, i.e., the external property that is relevant to informative descriptions. Rāzī’s use of terminology here is precise and deliberate. His first option (i), whose formulation is almost identical in both the *Nihāya* and the *Mulakhkhaṣ*, evokes Rāzī’s discussion of *lāzim* as requiring some thing that “reverts to” the quiddity. In any case, he will clarify (i) in his objection to it, which we shall return to shortly. His second option (ii) differs in each work. In the *Nihāya*, it seems to simply mean a *lāzim* that does not “revert to” or have a “specificity” rooted in the essence, i.e., it is the kind that is identified by the basic conditions he sets out for type-(2) definitions. In the *Mulakhkhaṣ*, the contrast between (i) and (ii) is even more evident, and

²⁶¹ Rāzī, *Nihāya*, fol. 3a.

²⁶² Rāzī, *Manṭiq al-Mulakhkhaṣ*, 103.

makes clear that the distinction amounts to one between a *de re* and a *de dicto* attribution. That is, with respect to (ii), he does not say in the *Mulakhkhaṣ* that the object of attribution is the quiddity or *māhiyya* but only “this much” (*hādha al-qadr*). Because, in the *Nihāya*, his discussion is more distant from Aristotelian terminology, Rāzī does not use *māhiyya* but uses *ḥaqīqa*, though in a general way referring to universal or object of knowledge. Also, with regard to terminology, it is notable that, in the *Mulakhkhaṣ*, he uses “to occur” (‘*araḍa*) for the attribution in (i) as well as “belongs to” (*lahu*). The term ‘*araḍa* here, following his discussion of the sense of essential part (*dhātī*) as the *per se* accident (‘*araḍī*) in *Demonstration*, implies the specific kind of attribution the Aristotelians envision. “It possesses” (*lahu*) simply indicates that the “some thing” possesses the attribution, irrespective of the quiddity of that thing.²⁶³ In fact, later in the discussion, Rāzī states with regard to (ii) that what is sought here is that the property, and not its specificity, “belongs to” *lahu*, as we shall see. Let us move on to examining why he dismisses both possibilities as ways of construing informative definitions.

With regard to (i), Rāzī focuses on the nature of the specificity or *khuṣūṣiyya*. Rāzī provides the same line of reasoning in both the *Nihāya* and the *Mulakhkhaṣ* against the possibility of identifying this specificity. His basic argument is that the same concomitant can apply to different quiddities. Rāzī states that our knowledge of a quiddity’s giving rise to or causing (*mu’aththira*) a certain concomitant does not lead to our knowledge of the type of specificity that we seek in such definitions. That is, our knowledge of a property as a concomitant, viz., a property that is inseparable of a thing in existence and non-existence, does not yield knowledge of the property as being a

²⁶³ It can be noted that (i) differs from the *kalām* definitions noted above because the essence in itself (or the Attribute of Essence) is simply an identity statement and no lower-level constituents can figure in the formulation of its definition. But (ii) does seem to include *kalām* definitions.

necessary or *per se* accident of a thing. Indeed, he states that even if it is granted that a concomitant only applies to a single quiddity, it is not possible to categorically assert (*lā yumkin al-qatʿ*) the necessity of the specificity without the evidence of sense perception (*ḥiss*) or proof (*burhān/dalīl*). That is, even if the concomitant applies only to one subject, i.e., the object (*malzūm*) entailing the concomitant property (*lāzīm*), the necessary relation cannot be affirmed without the further evidence of the sense perception or proof. Rāzī goes on to argue that even the evidence of sense perception and proof is of no use. He states that it is not possible to have knowledge of the specificity of the concomitant to the quiddity without first knowing the antecedent quiddity, and so using the specificity or the consequent concomitant to define the antecedent quiddity is circular. That is, rather than identifying a quiddity, descriptions seem to presume the very quiddity in which *per se* accidents are said to occur. It is significant that Rāzī's discussion here addresses problems that apply more broadly to the theory of demonstration. Indeed, recall that, for Avicenna, the link between two properties, such as "risibility" and "rationality", established an immediate and necessary relation of predication. Moreover, the order that obtains between the two properties, i.e., that "rationality" is necessarily the explanatory cause of "risibility", but not the reverse, is also known by the method of definition and not by demonstration. Recall that if such properties were defined by deductive proof, then all the principles of a demonstrative science would be deduced.

For his objection to (ii), Rāzī states in the *Mulakhkhaṣ*, "The writer (*al-kātib*; i.e., one capable of writing) is some thing that has [the ability of] writing (*shayʾ mā lahu al-kitāba*), so if the [definiens of] it [i.e., writer] is 'some thing that has the ability of writing, and is not due to the specificity of that thing [to it], the definiendum would be

identical to the definitions.” Rāzī’s point is that if the link between the concomitant properties (*lawāzim*) entailed by the subject and the subject itself is not grounded in the essence of the subject – that is, if it is not a *de re* attribution – then the definition will be trivial or tautological not informative.

Before returning to Rāzī’s conclusion that real definitions must be replaced by his “nominal definitions”, there is one final matter to be discussed regarding his argument against real definitions. In the *Mulakhkhaṣ*, subsequent to the above objections, Rāzī provides a more general objection to real definitions, which I shall discuss only briefly. The argument claims that one cannot seek the definition of an unknown quiddity without already having a conception of the quiddity one seeks to define, in which case the quiddity would be known and not need to be defined. On the other hand, if one has no conception of the quiddity, then one cannot seek its definition since one would not know what one seeks to define, nor would one know that one has defined it, even if he happens upon the right object of definition.²⁶⁴ Rāzī considers two objections to his argument that he attempts to repel with counter-arguments. The first objection states that the quiddity is known in a certain respect and unknown in another (*ma‘lūm min wajh wa-majhūl min wajh ākhar*), making it possible to seek its unknown aspect. It is significant that Avicenna provides the same response in *Demonstration* and *Syllogistic* (i.e., *al-Qiyās*, which is Avicenna’s version of the *Prior Analytics*) to Meno’s (*Mān[u]n*) paradox, which sets out a puzzle against seeking knowledge in general of what is unknown, very much like Rāzī’s specific argument against acquiring a conception of an unknown quiddity through

²⁶⁴ Rāzī, *Maṭīq al-Mulakhkhaṣ*, 103-104.

definitions.²⁶⁵ Avicenna states that what is sought (*al-maṭlūb*) is known to us in a certain respect and unknown in another (*maʿlūm lanā min wajh, majhūl min wajh*) and that it is the unknown that we are able to seek.²⁶⁶ Importantly, however, Avicenna raises Meno's puzzle in the context that it was raised originally in Aristotle's *Posterior Analytics* and the *Prior Analytics*, which focused primarily on how universal knowledge applies to particulars in syllogistic arguments.²⁶⁷ Like Aristotle, Avicenna attempts to avoid the pitfalls of Plato in responding to Meno (i.e., positing recollection) without, however, accepting that we simply do not know the particular fact.²⁶⁸ Avicenna's solution follows Aristotle in suggesting that what is unknown in such cases is known potentially.²⁶⁹

Rāzī is well aware of all this. Following his responses to the two objections, he states regarding his specific argument against concept acquisition, "Know that this question was raised by the ancients (*qudamāʾ*) regarding [the claim] that acquiring knowledge (*taʿarruf*) of what is unknown is impossible."²⁷⁰ That is, he recognizes that the problem was one that was applied more generally to acquiring knowledge or learning.

²⁶⁵ In *Demonstration*, Avicenna states that his full discussion was made earlier in *Kitāb al-Qiyās*, which can be found in chapter 19 of book 9 of *al-Qiyās*.

²⁶⁶ Avicenna, *Demonstration*, 27.

²⁶⁷ The problem can be illustrated with an example. To borrow Avicenna's example in *Demonstration*, from knowing that "every man is an animal" we cannot infer that Zayd, who is some man in India, is an animal, if we have yet to know that Zayd exists. It thus follows that we do *not* know that Zayd is an animal, which is the conclusion of the syllogism. But if we know that every man is an animal and Zayd is a man, we must know that Zayd is an animal. Avicenna in *Qiyās*, like Aristotle in the *Prior Analytics*, in fact considers a wider range of problems regarding what is known and unknown in syllogisms, which he seems to divide into two kinds: one in which knowledge of particulars falling under the major premise is potential and another in which the consequence of the relation between the major and minor premises is potentially known. The case of not knowing or perceiving the particular whatsoever is a particular case of the former kind, which Avicenna raises in *Demonstration* but not in *Syllogistic*.

²⁶⁸ Aristotle raises the problem in *Posterior Analytics*, 71a25-71b9 and *Prior Analytics*, 67a21-67b26.

²⁶⁹ Avicenna however also utilizes his distinction between conception (*taṣawwur*) and assent (*taṣḍīq*) to make the case that though all learning is preceded by some knowledge, not all knowledge requires pre-existing knowledge. Thus, some knowledge is not learned. In the *Qiyās*, Avicenna makes clear that Meno's paradox aims specifically at acquiring knowledge through syllogistic proof not definition. Avicenna even has Meno state the problem as one concerning the conclusion of a syllogism (*Hal al-maṭlūb ʿindaka bi-l-qiyās maʿlūm aw majhūl?*), 545.

²⁷⁰ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 105, *Mulakhkhaṣ*, fol. 11a.

However, Rāzī thinks that one should distinguish between two distinct matters to which the problem may be applied: (1) our assent to propositions (*al-maṭālib al-taṣdīqiyya*) and (2) concept acquisition.²⁷¹ As applied to propositions, he provides the following response: seeking whether x is y or not y (his example is whether the world is originated or not), presumes our knowledge or conception of x and y, but not whether the relation (*nisba*) between x and y holds or not (*bi-l-thubūt aw al-intifāʿ*). So, he states, what we acquire in assent is what we sought in the first place by means of prior conceptions. Here, again, Rāzī attempts to maintain a *de dicto* reading of propositions as evidenced by his separation of the question of our conception of the subject and predicate from the nature of the relation that holds between the two. With regard to (2), Rāzī states that the same cannot be said of conceptions, i.e., they cannot be shown by proof, and restates his previous argument against defining quiddities.

It should be noted here that Rāzī's approach and use of Meno's paradox underscores a fundamental departure from the Aristotelian view of knowledge and demonstrative proof. Rāzī's response need not invoke any distinction between universal knowledge and particulars or between potential and actual knowledge. Indeed, in his view, knowledge of particulars is no different from universal knowledge, a point that was established above. Moreover, there are no primary or immediate conceptions, provided by real definitions, which provide the principles of scientific knowledge. To Rāzī, all conceptions are equally non-quidditative; they are simply our pre-scientific concepts expressed by linguistic terms. Recall his discussion in **T2** quoted above:

²⁷¹ Ibid., 105.

As for the second [i.e., knowledge of a thing's attributes], it is [for example] when a proof shows that the world is originated, and that for every originated thing there is an originator. Here, the intellect judges that the world has an originator, but it does not know what the quiddity (*māhiyya*) of that originator is, and what its reality is. So, what is known of this originator is that it is an originator. As for what it is (*mā huwa*) in its specified essence (*fī dhātihi al-makḥṣūṣa*), this is not known. This [type of] knowledge in terms of being knowledge of a thing is not with respect to its specific essence, but rather it is with respect to it having some attribute or accident.

Rāzī thus distinguishes between attributes *simpliciter* and essences that provide the grounds for demonstrative knowledge. Let us now turn to the conclusion he draws from his argument.

Subsequent to his critique of real definitions, Rāzī had suggested that the only solution (*ḥall*) is to concede that definitions are simply a matter of “making precise what a name signifies in a general way” (*tafṣīlu mā dalla ‘alayhi al-ism bi-l-ijmāl*). He concludes, moreover, that accepting this would mean that one could no longer maintain a distinction between real definitions and descriptions. Of course, with these concessions, the entire edifice of the Aristotelian theory of definition would crumble and along with it the theory of demonstration and scientific understanding. But, in the foregoing analysis, I have suggested that Rāzī's aim is not simply to undermine the Aristotelian system but to critically assess its approach so as construct an alternative. We have seen some aspects of how this alternative system works. It involves a systematic reassessment of fundamental

notions and principles, and of the methods of establishing those principles. In the following, and in the next chapter, I shall attempt to outline more broadly how his system can be applied to his philosophical discussion. Here I will assess his notion of nominal definitions that he seems to draw quite heavily on in philosophy.

Rāzī's own analysis has suggested that not much needs to be said about definitions. That is, his epistemic programme and critique of real definitions attempts at length to show that conceptions are basic and trivial, which in turn trivializes the means to their acquisition, i.e., definitions. However, Rāzī does make a minor distinction that may be of some significance in systematizing philosophical discourse. That is, as we saw in **T2**, he distinguishes nominal definitions from lexical definitions, which, Rāzī states, simply substitute one term for another. He deems lexical definitions as trivial and otiose in scientific discourse, suggesting that nominal definitions, which he endorses in philosophical discourse, have some non-trivial role. We know that nominal definitions certainly cannot provide noumenal knowledge, but they might have a less cognitively substantive function. In the *Mulakhkhaṣ*, his solution to problems aimed against real definitions and concept acquisition is to simply state: "By definition, we only mean making precise what a name signifies in a general way." But what does this mean? And is it supposed to distinguish it from lexical or stipulative definitions?

In the following, I provide some background to Rāzī's discussion of nominal definitions, though I will not attempt to fully excavate its history. Rather, I will attempt to reconstruct Rāzī's theory of nominal definitions by examining further aspects of his analysis of the predicables. With regard to the historical background, it is quite certain that Rāzī does not invent the term *al-ḥadd bi-l-ism*, nor its definition, as we noted above,

though it is unclear whether he modifies the notion of what *al-ḥadd bi-l-ism* is. In the *Nihāya* he indicates that some of the discerning philosophers (*baʿd al-muḥaqqiqīn*) have adhered to the notion that definitions simply detail what a name signifies generally, though he concludes that there remains in this position a certain ambiguity (*ghumūd*). The problem follows from the result that he drew from his critique of real definitions, specifically that definitions and descriptions will not differ. He states, “A description (*rasm*) is simply [what] is stipulated vis-à-vis what is thought (*bi-izāʾ mā yuʿqal*). So if one stipulates the name ‘knowledge’ vis-à-vis some thing that affects [the attribute of] being knowing (*bi-izāʾⁱ amrⁱⁿ mā muʾaththirⁱⁿ fī al-ʿālimiyya*), and one mentions in the definition of knowledge this much, he has detailed (*f-ṣ-l*) what the name signifies in a general manner, which would entail that it is a definition (*ḥadd*).”²⁷² Rāzī states that this is what is held by some *muḥaqqiqūn* but that the position is somewhat obscure. The obscurity he has in mind could be that a description here is equated with any conventional definition, in which case no distinction would remain between descriptions and lexical definitions, and even stipulative ones. Rāzī perhaps wants to indicate in the *Nihāya* that there might be more to nominal definitions than this. Though ultimately not much will hinge on the question, in the following I make an attempt at showing that Rāzī does want to insulate nominal definitions from the charge of triviality that is made of stipulative definitions.

First, let us return to Rāzī’s description of nominal definitions as that which details what a name signifies imprecisely or in a general manner. Lexically, the two operative and contrasting terms in the definition are *tafṣīl* and *bi-l-ijmāl* (or alternatively

²⁷² Rāzī, *Nihāya*, 3b.

ijmāl^{an} or *bi-l-jumla*), which carry a range of meanings including, for *tafṣīl*, to explain, to expand and to divide; and, for *ijmāl*, to put together, to summarize, and to treat as a whole. Importantly, however, the terms seem to invoke a technical sense that appears in the *kalām* analysis of knowledge, specifically regarding a distinction made between general and detailed knowledge (i.e., *‘ilm al-jumla* versus *‘ilm al-tafṣīl* respectively). A range of problems involving the distinction interested the *mutakallimūn*, including how the two constitute distinct species of knowledge and how the distinction mapped onto the distinction between the nature of divine versus human knowledge. I shall focus, however, on points they raise regarding the object of knowledge rather than the nature of knowledge as a property or quality belonging to the knower.

In discussing whether general knowledge has an object, Ibn Mattawayh (fl. first half of the 11th century) in *al-Tadhkira* considers the example of knowing Zayd, i.e., an individual. Against a position ascribed to Abū Hāshim, which holds that general knowledge does not have an object, Ibn Mattawayh argues that one’s general knowledge of Zayd does have an object since we distinguish between the *jumla* that applies to Zayd from that which applies to another.²⁷³ Moreover he states that if one knows that Zayd has a mother, then his mother becomes distinguished from men, i.e., in a manner constituting general knowledge. That is, even if one does not know Zayd’s mother in a more precise manner (say, by perception and acquaintance), there is an object of our general knowledge of his mother which serves as the ground for the distinction between his mother’s being a female rather than a male. Another example is our knowledge of the rewards of paradise, which Ibn Mattawayh states is only ever general knowledge. This is

²⁷³ Ibn Mattawayh, *al-Tadhkira fī Aḥkām al-Jawāhir wa-l-A‘rād*, ed. D. Gimaret (Cairo: Institut français d’archéologie orientale du Caire, 2009), 622.

because detailed knowledge of the infinite set of things that comprise those rewards is impossible. It seems from the examples that the distinction seems to include both whole/part as well as universal/particular relations. The above examples seem to concern only knowledge of particulars and thus only the relation between wholes and parts. Thus, knowing Zayd or his mother in a general manner (*bi-l-jumla*) seems simply to involve fewer details or less factual information about each individual than knowing them with precision or detail (*tafṣīl*). The example he provides of our knowledge of oppression being evil (*qubḥ al-ẓulm*) and our knowledge of a particular oppressive act being evil seems, however, to be a matter of the relation between universal and particular knowledge.

Ibn Mattawayh reports an opinion of Abū ʿAbd Allāh (d. 367/977), a member of the Basran Muʿtazilī school, that knowing that oppression is evil, and knowing that *this* act is oppression, leads one to the (third) knowledge that *this* act is evil.²⁷⁴ This is a method added to the traditional *kalām* methods of proof (generally *naẓar* and *istidlāl*) by which belief becomes knowledge. This seemingly late admission might be due to the influence of Aristotelian syllogistic. But, whatever the source, what is significant is that the *kalām* distinction between *tafṣīl* and *ijmāl* is sufficiently pliable to allow for both whole/part and universal/particular relations. Here, the fundamental distinction between universal knowledge and particular knowledge, as held by the Aristotelians, is not made. The question remains of how these later *mutakallimūn* systematically approached the relation between universals and wholes/parts, if they ever did. It might be noted that Abū Hāshim's rejected opinion might be taken as viewing all general knowledge as relating to

²⁷⁴ Ibn Mattawayh, *Tadhkira*, 618.

something like universals since he denies that the former has any object of knowledge.

But this is speculative on my part.

If we turn back to Rāzī's example of stipulating the name 'knowledge' for a specific effect of being-a-knower, his problem seems to be the following. Our knowledge of "knowledge" in a general manner (*bi-l-ijmāl*) does not comprise the various effects of being knowing, all of which would however comprise our knowledge of detailed knowledge (*tafṣīl*). If however we stipulate the name knowledge for "some" specific effect, our reference to that effect would "detail" what our knowledge refers to generally. But the same can be applied to each effect, thus resulting in the proliferation of names and definitions. To Rāzī's mind, the effects or those properties that are detailed can be viewed as the concomitants of specific kinds. Now, in the examples provided above, no major problem ensues because we cannot really be mistaken about who Zayd or his mother is. But we have encountered a non-trivial problem that Rāzī discusses, which concerns a clash between diverging, and competing, conceptions and definitions of the quiddity of a thing, namely, "body". That is, as discussed above, Rāzī considers the basic sense of "body" as referring to that which possesses extension and space-location. But the *mutakallimūn* unknowingly conflate uses of the term "body" when they, on the one hand, refer to it as that which has space-location and, on the other, as that which is made up of a certain number of atoms. Rāzī insists that the two senses must be distinguished since one requires a proof for the existence of atoms (i.e., its constituent parts) and the other (i.e., the concept signified by our ordinary-language term) is basic and requires no proof. The obscurity then arises from the fact that the *mutakallimūn* do not seem to systematically distinguish between the different types of relations that hold between certain universals

and their properties. The *mutakallimūn* certainly seem to have the philosophical resources, for example, in the distinctions that some make between the Attribute of Essence and the Essential Attribute of a thing. But as the above analysis of general and particular knowledge suggests, the consequences have not entirely been worked out. Indeed, even the distinction between whole/part and universal/particular relations remains in flux. All this requires a systematic analysis of developments in later *kalām*, which I believe served as an important background source for Rāzī's alternative system.

Chapter 4

Philosophy and Science: The Young Rāzī's New Philosophical Programme

In this section, I assess the structure of Rāzī's two main philosophical works, the *Mulakhkhaṣ* and the *Mabāḥith*, within the context of our previous analysis of Rāzī's epistemological and logical programme. I argue that Rāzī's restructuring of the philosophical corpus is motivated by his philosophical programme that sharply distinguishes between phenomenal and noumenal objects of knowledge. His objective was to advance a model of philosophy or science which did not involve the epistemological and ontological assumptions inherent in the traditional Aristotelian division of the sciences. In fact, our analysis of Rāzī's phenomenalist agenda in logic should lead us to expect this. That is, the Aristotelian division of the scientific disciplines, which involves the theory of the autonomy and "subalternation" of the sciences (particularly as interpreted by later commentators, and most importantly Avicenna), views the proper subject-matter of a science as corresponding to a fundamental ontological kind.²⁷⁵ That is, a science is defined by the genus or kind it studies or takes as its "subject-matter". Moreover, the propositions that an Aristotelian science seeks to demonstrate are those that are the *per se* properties of the subject matter, which are

²⁷⁵ For an analysis of the views of several ancient commentators on the theory of demonstration and the definition of a science, see especially these recent articles, Owen Goldin, "Two Traditions in the Ancient Commentaries"; Miira Tuominen, "Alexander and Philoponus on *Prior Analytics* I 27-30: Is There a Tension between Aristotle's Scientific Theory and Practice?" in *Interpreting Aristotle*; Maddalena Bonelli, "Alexander of Aphrodisias on the Science of Ontology," in *Interpreting Aristotle*, 101-121; Angela Longo, "Les « Seconds Analytiques » dans le commentaire de Syrianus sur la « Métaphysique » d'Aristote," in *Interpreting Aristotle*, 123-133.

primarily the *per se* accidents discussed above.²⁷⁶ As Avicenna states in the *Ishārāt*, “Each one of the sciences has a proper thing or things (*shayʾ aw ashyaʾ mutanāsiba*) whose properties (*aḥwāl*) we investigate and those properties are the *per se* accidents (*al-ʿarād al-dhātiyya*) of it, and the ‘thing’ is called the subject-matter (*mawḍūʿ*) of the science, like magnitude is to geometry.”²⁷⁷ If this is so, then it follows that no properties, or *per se* accidents, of a particular science can be proven to hold of the same subject, or a different subject, in another science. This, as it will be recalled, is due to the fact that *per se* accidents apply to the subject with a *de re* necessity rather than a *de dicto* necessity. That is, the properties apply necessarily to the essences of things. However, Rāzī rejects the *de re* readings of *per se* accidents and in fact the entire Aristotelian theory of *per se* predication on which the notion of demonstrative science is based. As such, we should expect Rāzī’s independent works of philosophy to depart from the traditional division of the Aristotelian sciences.

In the *Mabāḥith*, Rāzī indicates that he views the structure and order (*tartīb*) of his work as being novel and that this order bears some philosophical significance. In his conclusion to the *Mabāḥith*, he states: “Since God has enabled me to bring together these problems of natural philosophy and metaphysics (*al-masāʾil al-ṭabīʿiyya wa-l-ilāhiyya*) in this order (*al-tartīb*) and [with] the critical evaluation (*tahdhīb*) [of those problems] in a manner that no one before me has [employed]...”²⁷⁸ In his introduction to the *Mabāḥith*, he clarifies in a “general manner” (*ʿalā wajh kullī*) the order of his book and states at the end of the discussion, “If you reflect upon the order (*tartīb*) of our book, you

²⁷⁶ This is a simplification since there are demonstrations of events and attributes that are not *per se* properties in the narrow sense construed in the above discussion. However, my primary focus is on the *per se* or necessary properties that apply to sensible composites, that is, sensible substances.

²⁷⁷ *Sharḥ al-Ishārāt*, I, 348.

²⁷⁸ Rāzī, *Mabāḥith*, II, 557.

will find that it begins with the most general of things (*a^camm al-umūr*), and that descends from it [as the work proceeds] to the more and more specific. As we have finished [with providing] a indication (*al-ishāra*) of the manner in which [the book] is ordered (*kayfiyyat al-tartīb*), we will now set out the index of the chapters and sections.”²⁷⁹ Rāzī does not elaborate on the significance of the order of his work but there are clear indications that primarily epistemological considerations motivate his development of a new structure. For one, he connects the descending order from what is more general to more specific to the nature of our general and specific knowledge. He states, “Know that it has been established that whatever is most general, our knowledge of it is most perfect and complete.”²⁸⁰ Still, Rāzī provides only “pointers” or indications here. With regard to the introduction, his reluctance to expand further on his ordering may be due to the fact that he expects a general audience to read the introduction, as indicated by the long dedication of this work to the ruler Abū al-Ma^cālī Suhayl ibn al-^cAzīz. (There may be other reasons as to why Rāzī is not so forthcoming, which will be discussed shortly.) In the following, I assess what motivates Rāzī’s restructuring of philosophical discourse by drawing on the above analysis of his epistemology and logic as well as his analysis of a number of problems that relate to the structure of the work. However, I first turn to examining current views of the nature and structure of Rāzī’s *Mabāḥith* and *Mulakhkhaṣ*, and, more generally, interpretations of Rāzī’s approach to philosophical discourse.

²⁷⁹ Rāzī, *Mabāḥith*, I, 93-94. Cf. Ayman Shihadeh, “From al-Ghazālī to al-Rāzī: 6th/12th Century Developments in Muslim Philosophical Theology,” *Arabic Sciences and Philosophy*, 14 (2005), 170-171.

²⁸⁰ *Ibid.*, 90.

The unique and highly influential structure of the two works, the *Mabāḥith* and the *Mulakhkhaṣ*, was already noted by Ibn Khaldūn (d. 1406) in his *Muqaddima*. In his narrative of the development of *kalām* and *falsafa*, Ibn Khaldūn states,

Then those *mutakallimūn* who came later (*al-muta'akhhirūn*) mixed the problems (*masā'il*) of *'ilm al-kalām* with the problems of *falsafa* due to the two [disciplines] sharing in [the same] topics of inquiry (*al-mabāḥith*) and [due to] the similarity of the subject-matter of *'ilm al-kalām* with the subject-matter of the science of metaphysics (*ilāhiyyāt*), and [due to similarity of] the problems (*masā'il*) of the former [*'ilm al-kalām*] with the problems of the latter [*falsafa*], so that it became as though they are one science (*fann wāḥid*). Then they [i.e., the *mutakallimūn*] changed the order (*tartīb*) [advanced by] the philosophers (*al-ḥukamā'*) of the problems of natural philosophy and metaphysics, and they mixed them up [to make] one science, introducing it [i.e., the new science] with the discussion of general things (*al-umūr al-ʿamma*), which they then followed with [the discussion of] corporeal things (*al-jismāniyyāt*) and its concomitants (*tawābi'ihā*), which [they followed] with [the discussion of] immaterial things (*rūḥāniyyāt*) and its concomitants, as was done by the Imām Ibn al-Khaṭīb [i.e. Fakhr al-Dīn al-Rāzī] in *al-Mabāḥith al-Mashriqiyya* and by everyone after him of the scholars of *kalām*.²⁸¹

Ibn Khaldūn's depiction of the structure of Rāzī's *Mabāḥith* is not entirely accurate.

The three sections into which he divides Rāzī's new ordering correspond to Books

²⁸¹ Ibn Khaldūn, *al-Muqaddima* (Beirut: Dār al-Kitāb al-Lubnānī, 1982), 921; cf. Ibn Khaldūn, *The Muqaddimah: An Introduction to History*, ed. F. Rosenthal (New York: Pantheon Books, 1958), III, 141-143.

(*Kitāb*) I, II, and III of the *Mabāḥith* and the *Mulakhkhaṣ*. In specific, Ibn Khaldūn's division corresponds to the philosophy or *ḥikma* section of these works since the *Mulakhkhaṣ* has a logic section that precedes Book I, which, as suggested above, constitutes philosophy proper in Rāzī's view. That is, it is where substantive philosophical problems are assessed (e.g., the status of mental forms, the ontological status of universals, and so forth), which, Rāzī's suggests, comes after our having sorted out the necessary epistemological and logical principles. The *Mabāḥith* does not have a logic section, but, as shown below, particularly in Chapter 5, Book I of the *Mabāḥith* presumes, and explicitly draws on, his discussion in logic.²⁸² Here, it should be noted that Ibn Khaldūn does not explain precisely the nature of each book and how the work as a whole forms a unity. His use of "corporeal things" and "immaterial" or "spiritual" things to designate the topics of Book II and Book III, respectively, is not entirely accurate. Book II, for example, discusses immaterial substances, such as the celestial intellects and souls.²⁸³ Book III focuses on the existence of the Necessary Existent, or God, and his attributes and acts. Below I will assess the nature of each book of the *Mabāḥith* and the *Mulakhkhaṣ*, and then how the two works constitute a unity. I turn now to contemporary scholarship.

Recent scholarship has made a number of attempts at tackling the question of the structure and aim of Rāzī's *Mabāḥith* and *Mulakhkhaṣ*. The interest in his new approach to structuring philosophical and theological works is, perhaps, primarily due to how

²⁸² In Chapter 5, I make the specific case that Rāzī's discussion of quiddity (*māhiyya*) in Book I of the *Mabāḥith* presumes and alludes to the distinction he raises between *de re* and *de dicto* necessity in context of his discussion of *per se* predication.

²⁸³ Rāzī, *Mabāḥith*, II, 451-463.

influential it was in post-classical Islamic philosophy and theology, a point already suggested by Ibn Khaldūn. Indeed, the structure of the *Mabāḥith* and the *Mulakhkhaṣ* served as the model for the new “philosophized” works of *kalām* in the post-classical period.²⁸⁴ It would also influence a new brand of philosophical compendia that would emerge in the post-classical period. Below, I suggest that Rāzī’s approach to structuring philosophy provided a framework for later authors to devise new systems that depart from the Aristotelian ordering of the sciences. Moreover, because Rāzī’s new structure is based on a philosophical programme, I suggest that these new systems, following Rāzī’s approach (even if they depart from him in details), were not based on *ad hoc* divisions that obscured the scientific system of the Aristotelians. Rather, post-classical authors seem to be attempting to devise alternative systems.

Recent studies have corroborated the general outline provided by Ibn Khaldūn. Frank Griffel has noted: “Overall, this [i.e., Rāzī’s approach to dividing the *Mabāḥith* and the *Mulakhkhaṣ*] leads to a new perspective on philosophy that will have a lasting influence.”²⁸⁵ Still, no comprehensive study seeking to explain the logic or rationale behind Rāzī’s model has been undertaken. The recent studies, focusing primarily on the structure of the *Mabāḥith* and the *Mulakhkhaṣ*, do however shed light on a number of aspects of the new model. I will examine the main results of these studies before returning to my analysis of the structure of Rāzī’s early philosophical works.

²⁸⁴ Frank Griffel, “Fakhr al-Dīn al-Rāzī,” 343-344; Eichner, “Dissolving the Unity,” 139-190; Shihadeh, “From al-Ghazālī to al-Rāzī,” 177-179. See also H. Eichner’s results in “The Chapter ‘On Existence and Non-Existence’ of Ibn Kammūna’s *al-Jadīd fī l-Ḥikma*: Trends and Sources in an Author’s Shaping the Exegetical Tradition of al-Suhrawardī’ Ontology,” in *Avicenna and His Legacy*, ed. Y. T. Langermann (Turnhout: Brepols, 2009), 143-177.

²⁸⁵ Griffel, “Fakhr al-Dīn al-Rāzī,” 343-344.

In an article entitled, “Dissolving the Unity of Metaphysics: From Fakhr al-Dīn al-Rāzī to Mulla Ṣadra al-Shirāzī”, Heidrun Eichner seeks to explain the structure of the *Mulakhkhaṣ* and the *Mabāḥith*, drawing in part on developments in preceding works of *falsafa*. Eichner notes that Rāzī divides the philosophical part (i.e., the section of *ḥikma* or philosophy proper) of the two works into:

Book I: Common things (*al-umūr al-‘āmma*);

Book II: Categories of Contingent Things (*aqsām al-mumkināt*);²⁸⁶

Book III: Pure Theology (*al-ilāhiyyāt al-maḥḍa*).

Eichner argues that *falsafa* works written before Rāzī contain features that “prefigure the structure of the *al-Mulakhkhaṣ* and the *al-Mabāḥith al-Mashriqiyya*,” but noting that the ordering of the Aristotelian sciences in those earlier works diverge in fundamental ways from Rāzī’s new structure.²⁸⁷ Eichner’s general conclusions regarding Rāzī’s approach to the restructuring of his philosophical works are particularly significant. First, Eichner views the Peripatetic works that precede Rāzī as forming an “encyclopedic tradition”, which consists in reorganizing and reformulating the positions of earlier authorities in the Peripatetic tradition. The primary authority in these works is Avicenna. Rāzī can be viewed as generally following this tradition of the encyclopedic exposition of philosophy. Second, Eichner finds that Rāzī’s philosophical works fall directly within the Avicennan tradition, stating that the Avicennan philosophical works, especially Bahmanyār’s *Kitāb al-Taḥṣīl*, contain a number of “conceptual parallels”. Eichner notes however that Rāzī incorporates elements of *kalām*. It should be noted that Eichner does not focus in this

²⁸⁶ Eichner has “Substances and Accidents” as the primary sub-division of contingent things, which is correct, but for reasons discussed below it is important to note that this section is meant to study contingent things more broadly, including non-existent or hypothetical entities. Eichner, “Dissolving the Unity”, 156.

²⁸⁷ Eichner, “Dissolving the Unity”, 156.

spanning study on what might underlie or motivate such a synthesis in Rāzī. However, she does provide a suggestion. Eichner states that the structural changes do not seem to be motivated by “deeper theoretical concerns”; rather, the changes follow from the general practical considerations of organizing philosophy that preoccupied the encyclopedic *falsafa* tradition subsequent to Avicenna.²⁸⁸

As suggested, Eichner’s analysis does not aim to assess the philosophical agenda behind Rāzī’s restructuring of philosophy. She views Rāzī’s innovations as leading to the dissolution of the unity of metaphysics and, indeed, the Aristotelian sciences in general. In another recent study, focusing primarily on the structure of the *Mabāḥith*, J. Janssens corroborates this result. He states, “In any case, one has to admit that ar-Rāzī – perhaps following Bahmanyār but certainly not slavishly – has somewhat blurred the distinction between logic, natural sciences and metaphysics.”²⁸⁹ Because no theoretical concerns are viewed as underpinning and motivating Rāzī’s reorganization of philosophy, the recent studies do not explain why Rāzī so radically departs from the *falāsifa* so that nothing is preserved of the division, autonomy, and subalternation of the Aristotelian sciences. In this light, Rāzī’s structure starkly contrasts with the post-Avicennan *falāsifa* – like Bahmanyār, Lawkarī, Abū al-Barakāt al-Baghdādī and so on – who seek, in one way or another, to preserve the major divisions of the Aristotelian sciences.²⁹⁰ In fact, the order

²⁸⁸ Ibid.

²⁸⁹ Jules Janssens, “Ibn Sīnā’s Impact on Fakhr al-Dīn al-Rāzī’s *Mabāḥith al-Mashriqiyya*, with Particular Regard to the Section Entitled *al-Ilāhiyyāt al-Maḥḍa*: An Essay of Critical Evaluation,” *Documenti e studi sulla tradizione filosofica medievale*, 21 (2010), 267.

²⁹⁰ According to J. Janssens, Bahmanyār departs from Avicenna, seemingly, to “re-Aristotelize” the division of the philosophical sciences. However, his own restructuring is far from a return to Aristotle’s actual view. What is relevant here is that Bahmanyār, ultimately, is attempting to provide a structure for philosophy that accords with the Aristotelian notion of the autonomy of the philosophical sciences and especially the notion of metaphysics as being the highest science from which other sciences derive their principles. See J. Janssens, “Bahmanyār ibn Marzubān: A Faithful Disciple of Ibn Sīnā?”, in *Before and After Avicenna: Proceedings of the First Conference of the Avicenna Study Group*, ed. D. Reisman with the

of the philosophical sciences advanced by these authors of *falsafa*, even if they diverge greatly from one another, have much more in common between themselves, in this regard, than with Rāzī. That is, though they disagree with regard to how the Aristotelian sciences ought to be ordered, they all agree that the sciences are ordered hierarchically with regard to the ontological status of their subject-matter and that all the sciences derive their principles from the highest science, metaphysics.²⁹¹ To explain the difference between Rāzī and the *falāsifa* more precisely, however, we will have to discuss the philosophical motivations underlying Rāzī's division in more detail.

The recent studies on the structure of the *Mabāḥith* and *Mulakhkhaṣ* do not make clear whether Rāzī's dissolution of Aristotelian philosophy is advertent or not. In any case, no philosophical agenda is proposed that would properly explain his new organization. Our above analysis has shown that it is extremely unlikely that Rāzī was simply unaware of the consequences that his restructuring of philosophical discourse would have on the autonomy and unity of the Aristotelian sciences. That is, he understands quite intimately Aristotle's system of demonstrative science, particularly as interpreted by Avicenna in *Demonstration*. In the following, I argue that Rāzī had a particular philosophical agenda in the restructuring of philosophy and science that was

assistance of A. H. al-Rahim (Leiden: Brill, 2003), 177-199; Ibid., "Bahmanyār and his Revision of Ibn Sīnā's Metaphysical Project," *Medioevo*, 32 (2007), 99-117. See also Janssens recent analysis of Lawkarī's *Bayān*, "al-Lawkarī's Reception of Ibn Sīnā's *Ilāhiyyāt*," in *The Arabic, Hebrew and Latin Reception of Avicenna's Metaphysics*, ed. D. N. Hasse and A. Bertolacci (Berlin: De Gruyter, 2012), 7-26. For Abū al-Barakāt, see Roxanne D. Marcotte, "Abū l-Barakāt al-Baghdādī," in *Encyclopedia of Medieval Philosophy*, 10-12.

²⁹¹ Abū al-Barakāt, however, seems to depart sharply from the Aristotelian/Avicennan line. Moreover, after Avicenna, Abū al-Barakāt is perhaps the most prominent philosophical source in Rāzī's works. However, in terms of Rāzī's unique epistemological and logical programme outlined above, I have not found evidence of Abū al-Barakāt's thought in Rāzī's larger methodological problems, particularly relating to Rāzī's approach to real definitions and *per se* predication. It might be noted that it is less likely that Rāzī followed Bahmanyār, considering the low opinion that Rāzī seems to have of him. For example, he states regarding the discussion of the formative faculty (*al-quwwa al-muṣawwira*): "Bahmanyār, despite meagre abilities in [philosophical] science (*ma'a qillat biḍā'atihi fī al-'ilm*), attempts to avoid such problems, which is also [an indication of] his extreme stupidity in attempting what is not possible." *Mabāḥith*, I, 280.

informed by his epistemological and logical programme. This is not to say that some of the primary results established in the studies of Eichner and Janssens fail to hold. For example, I believe that Rāzī's works are indeed meant to be "encyclopedic", at least in a broad sense. Rāzī states in his Introduction to the *Mabāḥith* that he has attempted to obtain (*taḥṣīl*) the core (*al-lubāb*) problems and positions of the predecessors, so as to elucidate them, raise aporias (*al-shukūk*) against them, and respond sufficiently to the aporias.²⁹² However, Rāzī makes a crucial addition: "Then [i.e., after elucidating positions and raising and solving aporias] I will add to the principles (*uṣūl*) that God has enabled me to investigate (*taḥrīr*), obtain (*taḥṣīl*), establish (*taqrīr*), and elucidate (*tafṣīl*) that which none of [my] predecessors (*al-mutaqaddimīn*) have [been able to] grasp (*lam yaqif °alayhi*) and none of the previous seekers (*al-sālikīn al-sābiqīn*) were able to obtain [*lam yaqdir... al-wuṣūl ilayhi*]. So this book of ours will be as though it includes all things of the same kind that other [works contain], but it exceeds other works by universal principles (*uṣūl kulliyya*), true foundations (*qawā'id ḥaqīqiyya*), scientific points, and philosophical subtleties."²⁹³ In the context of Rāzī's epistemological and logical programme, his statement here can be read as hinting at his unique philosophical agenda, which departs particularly from the philosophical approach and commitments of his Aristotelian predecessors.

In one of the more comprehensive studies of Rāzī's works, and particularly of problems in Books I to III of the *Mabāḥith* and the *Mulakhkhaṣ*, Muḥammad al-Zarkān

²⁹² Rāzī, *Mabāḥith*, I, 88.

²⁹³ Ibid., 89.

provides a more general analysis of the philosophical nature of the two works.²⁹⁴ Zarkān focuses on the notion raised by Ibn Khaldūn regarding the “mixing” (*al-mazj*) of *falsafa* and *kalām*.²⁹⁵ In Zarkān’s view, the notion is misleading. He argues that the *Mabāḥith* and the *Mulakhkhaṣ* are not in fact works of *kalām* but are strictly works of *falsafa*, which he defines broadly as those that fall within the Greek philosophical tradition. Zarkān locates his view of the two works within a larger narrative of the intellectual phases of Rāzī that he adopts from M. Qāsim, who wrote an earlier work on the development of Rāzī’s views.²⁹⁶ Qāsim’s narrative marks out four distinct phases according to the intellectual attitude that characterized Rāzī: (i) an early stage as a *mutakallim*, (ii) a stage influenced by *falsafa* (*thumma tafalsafa*), (iii) an agnostic stage with regard to *kalām* and *falsafa* (*thumma tawaqqafa*); and (iv) a stage in which he returns to *kalām* but “mixes” aspects of *kalām* and *falsafa*. To these four, the narrative adds a last phase in which Rāzī shunned both *kalām* and *falsafa* and turned to more spiritual matters. I will return to assess this narrative of the intellectual phases of Rāzī below. Here, it can be noted that Zarkān does not examine Rāzī’s logical and epistemological principles, and so Zarkān views the *Mabāḥith* and the *Mulakhkhaṣ* as primarily works of *falsafa*. Zarkān in fact distinguishes between the *Mabāḥith* and the *Mulakhkhaṣ*. He views the *Mabāḥith* as highly influenced by Peripatetic philosophy and in particular Avicenna. Rāzī’s rejection of the indivisible part is, for example, taken by Zarkān as suggesting that Rāzī shifts from a *kalām* approach to a hylomorphic Aristotelian approach. However, Zarkān sees Rāzī in

²⁹⁴ In addition to the *Mabāḥith* and the *Mulakhkhaṣ*, Zarkān’s study assesses a number of other works of *kalām* and philosophy from various periods of Rāzī’s life. See Muḥammad Ṣ al-Zarkān, *Fakhr al-Dīn al-Rāzī wa-Ārāʾuhu al-Kalāmiyya wa-l-Falsafiyya* ([Cairo]: Dār al-Fikr, [1963]).

²⁹⁵ Zarkān, *Fakhr al-Dīn al-Rāzī*, 606-626.

²⁹⁶ *Ibid.*, 618.

the *Mulakhkhaṣ* as more critical and independent of Avicennan and Aristotelian views, and tending, to some extent, towards Platonism.

More recent studies have also distinguished between Rāzī's views in the *Mabāḥith* and his views in the *Mulakhkhaṣ*, though for reasons that are different from those provided by Zarkān. Shihadeh, for example, views the *Mabāḥith* as Rāzī's early attempt at engaging with *falsafa*, and is not representative of Rāzī's mature philosophical views. The *Mabāḥith*, according to Shihadeh, seems to contain internal contradictions and confusions. In the *Mulakhkhaṣ*, however, Rāzī is more "consistent and independent from Ibn Sīnā."²⁹⁷ Crucially, Shihadeh notes that the *Mulakhkhaṣ* refers the reader to his *kalām* works for an expansion on various problems raised in the *Mulakhkhaṣ*. As Shihadeh notes, this indicates that, by the time of his writing the *Mulakhkhaṣ*, Rāzī had begun to view his *kalām* and *falsafa* works as complementary. Like Zarkān, Shihadeh views the *Mabāḥith* and the *Mulakhkhaṣ* as primarily works of *falsafa* and not *kalām*.²⁹⁸ Moreover, Shihadeh views Rāzī's later work, *al-Maṭālib al-ʿĀliya fī al-ʿIlm al-Ilāhī*, as the culmination of Rāzī's synthesis of *kalām* and *falsafa*. The *Maṭālib*, which is primarily a theological work, provides a synthesis that is based on Rāzī's view of the attainment of human perfection through philosophical inquiry. Shihadeh states that the notion of philosophical discourse as leading to the attainment of human perfection is something that is opposed in the *Mabāḥith* and *Mulakhkhaṣ*. I will return shortly to Shihadeh's views on these three major works of Rāzī. It can be noted that my own analysis supports the notion that the later philosophized theological works, particularly the *Maṭālib*, have a very different aim than that of the *Mabāḥith* and *Mulakhkhaṣ*. However, I argue that the

²⁹⁷ Shihadeh, "From al-Ghazālī to al-Rāzī," 171; Ibid., *The Teleological Ethics of Fakhr al-Dīn al-Rāzī* (Leiden: Brill, 2006), 8.

²⁹⁸ Shihadeh, "From al-Ghazālī to al-Rāzī," 175.

philosophical approach that Rāzī sets out in his early works is one that is adhered to in his later theological works. More importantly for my analysis in this dissertation, I argue that the *Mabāḥith* and *Mulakhkhaṣ* do not fundamentally diverge with regard to Rāzī's philosophical outlook and approach. Rather, the main difference lies in the exposition of his views, which is primarily due to differences in the structure of the two works. This is not, of course, to deny that Rāzī's views on particular problems in the *Mabāḥith* may differ from his views in the *Mulakhkhaṣ*.

Here, a few notes can be made regarding the chronology of Rāzī's works. Griffel, Shihadeh, and Zarkān have provided a tentative chronology of Rāzī's works of philosophy and theology.²⁹⁹ Griffel includes the following works listed in chronological order as Rāzī's "Early Works": *al-Ishāra fī 'Ilm al-Kalām*, *Nihāyat al-'Uqūl fī Dirāyat al-Uṣūl*, and *al-Mabāḥith al-Mashriqiyya*. This set of early works is followed by the *Mulakhkhaṣ*, *Sharḥ al-Ishārāt*, and *Muḥaṣṣal Afkār al-Mutaqaddimīn wa-l-Muta'akhkhirīn min al-'Ulamā' wa-l-Ḥukamā' wa-l-Mutakallimīn*. Some of his later works written after 596/1209-10 include *Sharḥ 'Uyūn al-Ḥikma* and the *Maṭālib*. The *Maṭālib* seems to be his last work on *kalām* or *falsafa*.

In the above analysis, we saw that the *Mulakhkhaṣ* and the *Nihāya* were complementary, particularly with regard to Rāzī's methodological programme. His epistemological and logical concerns were identical, though his language differed to some extent. Moreover, we saw that problems and issues that Rāzī raised as a commentator on Avicenna, in *Sharḥ al-Ishārāt*, pointed to and complemented his positions in the *Mulakhkhaṣ* and the *Nihāya*. Some of his concerns regarding *per se*

²⁹⁹ Frank Griffel, "On Fakhr al-Dīn al-Rāzī's Life," 344; Shihadeh, *Theological Ethics*, 7-11; Zarkān, "Fakhr al-Dīn," 67-96.

predication were expressed in his analysis of Avicenna's discussion in the *Ishārāt*. In Chapter 6, I will examine further aspects of how Rāzī's commentary in *Sharḥ al-Ishārāt* support, sometimes more explicitly, his own systematic positions laid out in Books I to III of the *Mulakhkhaṣ* and the *Mabāḥith*.

In light of my discussion of Rāzī's methodological programme, I consider the early philosophical view of Rāzī, or "Early Rāzī", to be expressed primarily in the following works: the *Nihāya*, the *Mabāḥith*, the *Mulakhkhaṣ*, and *Sharḥ al-Ishārāt*. Here, I want to maintain that these works constitute distinct genres. The *Nihāya*, as Shihadeh argues, is primarily a work of *kalām*, as indicated by its structure and approach to discussing problems, whereas *Sharḥ al-Ishārāt* is a critical commentary on the *falsafa* work of Avicenna.³⁰⁰ The *Mulakhkhaṣ* and the *Mabāḥith*, however, advance, as I argue in the following, an independent philosophical approach that diverges significantly from both *kalām* and *falsafa*. Moreover, his approach and aim in the *Mulakhkhaṣ* and the *Mabāḥith* diverge from his later project, as described by Shihadeh, of developing a philosophized theology that focuses on the spiritual attainment of human perfection. I argue that Rāzī attempts to mark out, in the *Mulakhkhaṣ* and the *Mabāḥith*, a neutral space in which problems of ontology, "natural philosophy" broadly construed, and

³⁰⁰ I do not maintain that the distinction is one that is hard and fast. In fact, the structure of the *Nihāya* seems to depart from the structure of earlier *kalām* works (though, admittedly, the organization of *kalām* works was generally loose and often varied from one to another). However, the following analysis will show that the logic of its organization differs from that which informs the organization of what I view as his pure philosophical works: the *Mabāḥith* and the *Mulakhkhaṣ*. What makes them "pure", relative to the *Nihāya*, is that the very structure and approach follows quite rigorously the logical programme Rāzī sets out prior to Books I to III. Moreover, in the following, I suggest that Rāzī is attempting to provide a context to systematically approach the study of natural phenomena in a way that accords with his logical programme. My preliminary examination of the *Nihāya* suggests that it does not attempt to advance a positive or independent approach to the study of natural reality, but is primarily focused on defending Ash'arite creedal views. In this way, the *Nihāya* is closer to his later *kalām* work, *al-Arba'īn fī Uṣūl al-Dīn*. However, the *Nihāya* is a much longer work and it discusses a wider range of problems, including for example the analysis of the views of the astronomers and the philosophers, which the *Arab'īn* does not address in any detail.

theology can be undertaken. At the same time, however, the *Maṭālib*, written later when Rāzī is interested more in a philosophical theology, draws on the “pure” philosophical approach that was set out by the Early Rāzī. The following will clarify, and elaborate on, these general distinctions I have made.

An important point should be noted here. It may not be clear yet how the *Mabāḥith* fits into the philosophical and methodological programme advanced by the early Rāzī. My case studies regarding Rāzī’s analysis of quality, color and body attempted to show that his views in the *Mabāḥith* presume and invoke his epistemological and logical programme. However, the *Mabāḥith* was not written with a logic section, as noted above, and so it is not entirely clear how the work would draw on Rāzī’s methodological views. In Chapter 5, I examine how Rāzī’s discussion in the *Mabāḥith* proceeds. By means of a close textual analysis, I assess how he adapts the texts and views of Avicenna within the structure of the *Mabāḥith*, and how he asserts his own views. I show there that Rāzī operates in a very subtle manner. That is, often, his own views in the *Mabāḥith* can only be fully understood after systematically assessing his views on a number of related and foundational topics. Chapter 6 will corroborate this point. An important aspect of this is his logical views. Indeed, we will find that, in the *Mabāḥith*, Rāzī explicitly refers to an independent work of logic. However, my analysis in Chapter 5 will show that because Rāzī cannot directly invoke the results of his discussion in logic in the *Mabāḥith*, he has to approach problems in a more general manner and assert his own positions indirectly. This we will find in his discussion of Avicenna’s view of quiddity in V.1 of the *Ilāhiyyāt*. Rāzī departs from Avicenna’s analysis by pointing up the problem of *de re* necessity and the theory of *per se*

predication in Avicenna's *Demonstration*. The *Mabāḥith*, hence, differs from the *Mulakhkhaṣ* in that the *Mulakhkhaṣ* can directly draw on Rāzī's views in logic. We saw this to be the case where he directly referred to structured universals in his discussion of the quiddity in Book I of the *Mulakhkhaṣ*. Moreover, we will see that the indirect approach taken in the *Mabāḥith* requires more exposition, by contrasting and drawing out diverging views, which, in turn, requires more space. The *Mulakhkhaṣ*, however, is a summary or compendium of philosophical views, and as such cannot afford to devote such space.

A final point should be added regarding Rāzī's approach in the *Mabāḥith*. Rāzī, in the *Mabāḥith*, does not want to spoon feed his views to the reader. That is, he seems to expect his reader to draw out the consequences of the fundamental principles and points that he makes *in propria persona* throughout the *Mabāḥith*. However, distinguishing his own views and his summary or interpretation of the *falsafa* view is not always clear. Rāzī expects the reader to be able to distinguish between his analysis or interpretation of *falsafa* views and his assertion of his own views. For example, in his chapter on abstract or separate substances (*al-jawāhir al-mujarrada*), he states, "This is what we say on this topic, and this section is our [own] discussion (*min kalāminā*) and it comprises [a number of] hints (*rumūz*) and points (*nukat*) [so that] whoever invokes the preceding principles [i.e., that he has established] [will] by these [hints] grasp and obtain the truth that is necessarily entailed by them. But we have left them hidden so that only those worthy of [such knowledge] will obtain [knowledge of] them."³⁰¹ Here, Rāzī explicitly informs us that the reader needs to be attentive. But he will not always do so. My analysis in

³⁰¹ Rāzī, *Mabāḥith*, II, 460.

Chapters 5 and 6 will suggest that much of his analysis in the *Mabāḥith* presumes this methodology.³⁰²

I will begin first by examining the structure of the second of the three books of the *Mulakhkhaṣ* and the *Mabāḥith*, which is on contingent things, or more specifically substances and accidents. As Janssens has noted, Book II constitutes more than 90 percent of the *Mabāḥith*. The same can be said of Book II of the *Mulakhkhaṣ*. But before turning to Book II, I examine Rāzī's discussion of the Aristotelian categories. As noted above, Rāzī's view of the categories is central to understanding how he deploys his notion of structured universals in philosophy proper. In the Postscript at the end of this chapter, I discuss a number of problems with regard to the "neutrality" of the logic of Aristotle's *Organon* as received in the commentarial tradition. These problems include the role of form-matter analysis and the ontological status and role of the *Categories* in the *Organon*. There, I note that Rāzī, in *Sharḥ al-Ishārāt*, expands on Avicenna's discussion of the function and order of the books of the *Organon*, likely drawing on the logic of the *Shifā'*. Rāzī approvingly notes Avicenna's view that a full analysis of the categories ought to be separated from logic. In Avicenna's view, the *Categories* concern

³⁰² Here, the characterization of Rāzī's views in the *Mabāḥith* as diverging greatly from later works of philosophy and *kalām*, I believe, arises to some extent due to the ways in which Rāzī expresses his views. That is, for example, in places throughout Book II, Rāzī may be viewed as endorsing a *falsafa* position, like the theory of the Active Intellect. However, there he is not speaking *in propria persona*. As Chapter 6 shows, his chapter on knowledge in Book II points to aspects of why he in fact disagrees with the Avicennan view, which is further explained in his analysis of optical theory in his chapter on psychology at the end of Book II. Another problem, prominent in the literature, concerns Rāzī's view of hylomorphism in the *Mabāḥith*. As discussed above, his analysis of body has suggested that he does not endorse form-matter analysis in the *Mabāḥith*. In Chapter 5, I will examine how he systematically argues against form-matter analysis, and the hylomorphic interpretation of body, in Books I and II of the *Mabāḥith*. I show that the sections in which he sets out the hylomorphic view is simply an exposition of the dominant *falsafa* view, which he states is included for the sake of completeness. Cf. A. Setia, "Time, Motion, Distance"; Ibid., "Atomism and Hylomorphism"; Ibid., "Fakhr al-Dīn al-Rāzī on Physics". Setia views Rāzī as endorsing the *falsafa* view in the *Mabāḥith* and then returning to the atomism of *kalām* in the *Maṭālib*. See also Zarkān's discussion of various problems in the *Mabāḥith* in his work cited above. He suggests that Rāzī simply sides with the *falāsifa* on a number of views, which Rāzī later abandons.

metaphysical problems whose verification goes beyond the concerns of the logician. In the *Shifāʾ*,³⁰³ Avicenna preserves the traditional order of the *Organon*.

In his independent works, Rāzī provides his own reasons for excluding such discussions.³⁰³ In Book II of the *Mabāḥith* and the *Mulakhkhaṣ*, Rāzī, as noted, discusses contingent things, which he divides into “substances” (*al-jawāhir*) and “accidents” (*al-aʿrāḍ*). However, he divides the book into three parts: an introduction and two sections (*jumla*), one concerning accidents and the other substances. In the Introduction, Rāzī discusses the ontological status of the Aristotelian categories and whether we can determine the exhaustiveness of the ultimate ontological categories of existing things, i.e., the highest genera. Aspects of his arguments against the Aristotelian notion of the ontological status of the categories will be discussed in Chapter 5. Here I note two crucial points that he raises in his Introduction, which is grounded in his epistemological and logical programme. The first is the position that he pronounces in a number of works, in contrast to the position of Avicenna, that “substance” (*jawhar*) is predicated of what falls under it (i.e., as a subcategory) as one of its concomitants (*lawāzim*), and not as one of its genera. This is meant to stand in opposition to Avicenna’s division of substance into form, matter, body, soul and intellect. Moreover, it is aimed at undermining Avicenna’s real definitions of substances.³⁰⁴ Second, Rāzī does not believe that four things have been proven regarding the categories: (i) that each of the ten is a genus; (ii) that each category

³⁰³ That is, as noted, in *Sharḥ al-Ishārāt* it is not always evident when Rāzī is expanding on Avicenna’s position and when he is agreeing with the latter *in propria persona*. But external evidence suggests that Rāzī, for reasons that diverge from those of Avicenna, would like to exclude the *Categories* from logic.

³⁰⁴ Recall, for example, that Avicenna defines body as: “the *substance* in which three dimensions can be posited to obtain”. There are other considerations here that I will not address, most importantly the substantial status of differentia. Avicenna states that the differentiae of substances are substances. Rāzī, particularly in the *Mabāḥith* and the *Mulakhkhaṣ*, argues that this leads to a number of problems which can only be resolved if we state that substances are predicated of subordinate things as *lawāzim*. This debate has a long history in the commentarial tradition. See Frans de Haas, *John Philoponus’ New Definition of Prime Matter* (Leiden: E.J. Brill, 1997), 188-250.

is a highest genus (i.e., the most general ontological category); (iii) that the categories do not exceed ten; (iv) how they divide into species. Some points he finds more problematic or important than others. However, all his concerns are clearly grounded in his epistemological programme, as the following suggests. Rāzī states that it has not been shown that each of the ten categories divides into its species by *differentiae* rather than by concomitants (*lawāzim*). At the conclusion of his Introduction to Book II in the *Mabāḥith*, Rāzī states, “This is the set of problems that need to be established at the beginning of the *Categories* (*fī awwal al-Maḳūlāt*).”³⁰⁵ As such, Rāzī agrees with Avicenna that investigation into the categories as ontological kinds properly fall outside the scope of logic, but he fundamentally disagrees with Avicenna on their nature. Rāzī does not explain in the *Mulakhkhaṣ* and *Mabāḥith* why he begins Book II with this discussion, but it is apparent that it is important. That is, the substantive sections of Book II, namely, parts 1 and 2, are divided into substance and accidents, which are further divided into their species. Rāzī’s categories generally accord with the Aristotelian categorization, though Rāzī adds further sections in Book II, like cause and effect. Rāzī does not explicitly explain this apparent inconsistency. From the above analysis, one can deduce what Rāzī probably has in mind, so I now turn to his more explicit discussion of the categories in a different work.

In a treatise entitled *al-Risāla al-Kamāliyya*, Rāzī devotes a chapter to a discussion of the Aristotelian categories (*maḳūlāt*). The treatise is a very concise treatment of logic, metaphysics, and natural philosophy and it is ordered in a different

³⁰⁵ Rāzī, *Mabāḥith*, I, 286.

manner than the *Mulakhkhaṣ* and the *Mabāḥith*.³⁰⁶ In *al-Risāla al-Kamāliyya*, Rāzī treats the categories in an independent book (*maqāla*) that follows his book on logic and which precedes his discussion of metaphysics or theological matters. He does not discuss “common things” (*umūr ʿāmma*) which is the topic of Book I of the *Mulakhkhaṣ* and the *Mabāḥith*. However, his chapter in *al-Risāla al-Kamāliyya* on the categories begins with a subsection on existence, followed by a section on the division of existents, and then a third section on the division of bodies. Only the fourth chapter discusses the ten *Aristotelian* categories. He begins the chapter by stating that “their” view of the categories rests on a number of claims, several of which he lists briefly, and then summarizes some points made in the *Mabāḥith* and the *Mulakhkhaṣ*. He concludes by stating, “Know that the philosophers (*ḥukamāʾ*) divide each one of the categories into many kinds, just as they have divided the category of quality into four kinds (*anwāʿ*).³⁰⁷ These claims only stand if they provide a proof that these kinds are real attributes that are common to and constitutive of the essence of the kinds (*dākhila fī māhiyyat al-anwāʿ*), and that they are not external (attributes), and that those things by which they divide these genera are differentiae, and not the concomitants (*lawāzim*) of differentiae, and if they are differentiae that they are proximate rather than remote differentiae.”³⁰⁸ Rāzī goes on to state that the philosophers have not provided demonstrative proofs that the categories are the highest genera and it remains to be shown that the nine accidents are genera at all.

³⁰⁶ The structure and theological nature of the *Risāla al-Kamāliyya* seems to parallel to some extent his later work, the *Maṭālib*, though there are some differences. However, I have not been able to establish whether this is a work by later Rāzī. It is notable that the core epistemological programme laid out in the *Mabāḥith* and the *Mulakhkhaṣ* is invoked in this text, even if it diverges from the early works in structure and aim. If this is in fact a later work, this point corroborates my suggestion that his methodological programme informs even his highly theologized works from the later period.

³⁰⁷ *Anwāʿ* is the term that Avicenna uses in his *Maqūlāt*, see V.2, and V.3.

³⁰⁸ Rāzī, *al-Risāla al-Kamāliyya fī al-Ḥaqāʾiq al-Ilāhiyya*, ed. ʿA. Muḥyi al-Dīn (Beirut: Dār al-Kutub al-ʿIlmiyya, 2002), 35.

Clearly, Rāzī's arguments here directly follow from his epistemological and logical programme.

Rāzī's discussion and critique of the Aristotelian categories in his post-logical philosophical analysis (which he generally labels *ḥikma* and we have labeled “philosophy proper”) show how his logical and epistemological programme informs the very structure of Book II of the *Mulakhkhaṣ* and the *Mabāḥith*. That is, the topics studied in each chapter and the subdivisions of Book II, which loosely correspond to the ten categories, are not the Aristotelian categories. That is, Book II, in accordance with his logical programme, cannot presume that each topic of philosophical analysis is a fundamental and basic kind of ontological entity. For Avicenna, the categories are properly proven in metaphysics, and so he devotes Books II and III of the *Ilāhiyyāt* of *al-Shifā'* to establishing the ontological nature of the categories. Unlike Avicenna, Rāzī does not accept the Aristotelian logical tools that give the *falāsifa* access to such metaphysical truths.³⁰⁹ The substances and accidents of Book II of the *Mabāḥith* and the *Mulakhkhaṣ*, then, are not ontological categories but are simply the phenomenal objects of our senses. That is, Book II begins by positing our pre-scientific knowledge of sensible objects. As discussed in Chapters 5 and 6, he provides various deductive or inductive arguments to show that certain properties hold of our pre-scientific concepts in a way that does not presume a more specific theory of demonstration and the principles of Aristotelian metaphysics, a point we shall return to shortly. Crucially, such properties or statements that apply to the objects of sensible reality are not objects specific to a particular domain or science. Moreover, as we have seen with regard to his discussion of quality and body,

³⁰⁹ This is not to suggest that the Aristotelians in fact applied the tools always or directly in their metaphysical or scientific discussions.

Rāzī will engage in the metaphysical arguments that the Aristotelians customarily and properly treat in metaphysics. This is important because he does not include such discussions in his third book that treats “Special Metaphysics”, which in fact is theology in a narrow sense.³¹⁰ Rāzī’s Book II then is the proper place to study sensible phenomena, but without presuming an ontological viewpoint. Rather, all one is entitled to there is the minimalist analytic approach he has set out in his logical programme.

In Book I, Rāzī treats a number of “general concepts” (*al-umūr al-‘āmma*), a notion which Eichner has treated quite thoroughly. Eichner notes that it is a unique contribution of Rāzī that would have a great influence on later works. It can be noted that Avicenna does use the term in the title of V.1 of the *Ilāhiyyāt*. Still, they are clearly different. In V.1 Avicenna mainly discusses the question of universals and definition from an Aristotelian metaphysical perspective (which I examine in detail in Chapter 5). By contrast, Book I of Rāzī’s *Mulakhkhaṣ* and *Mabāḥith* are what might be called the general ontology of each work, though, as we will see in Chapter 5, they will draw into the discussion important epistemological and logical points. As well, in Chapter 5, I examine how Rāzī’s discussion in Book I departs from Aristotelian metaphysics, construed as a demonstrative science, and how he sets the ground to oppose the assumption of form-matter analysis in Book II. Book I, as such, will pave the way for the subsequent analysis of sensible phenomena without presuming form-matter analysis (see especially my discussion of Rāzī’s interpretation of the ontological status of the differentia and genus in Chapter 5). Book I is, therefore, consistent with Rāzī’s analytic programme. Indeed, in

³¹⁰ On Avicenna’s view of metaphysics as a demonstrative science and the relation of special metaphysics and henology to metaphysics more generally, see Amos Bertolacci, *The Reception of Aristotle’s Metaphysics in Avicenna’s Kitāb al-Šifā’*: A Milestone of Western Metaphysical Thought (Leiden: Brill, 2006), 209-211.

Chapter 5, I argue that Book I directly draws on his logical analysis, and, particularly, his arguments against *per se* predication. In this way, Rāzī's logical and ontological analysis leads to a new approach to the study of sensible phenomena.

Rāzī's study of the natural world is conducted within a new philosophical framework which departs from the Aristotelian approach and division of the natural sciences. However, one point is crucial to note regarding Book II. Rāzī states in his Introduction that Book II is about contingent things, i.e., the phenomenal categories of contingent things (without, of course, presuming what such categories are ontologically). Book II, then, is not limited to sensible phenomena but includes non-sensible contingent things, such as, hypothetical or fictional entities. Hence, Rāzī can assign independent chapters to the study of, say, prime matter, even though he does not affirm it. He states, "Know that prime matter has not been affirmed in our view. But those who do affirm it have discussed its characteristics, so we shall also discuss it so that our book is comprehensive of all that is said on each topic."³¹¹ The discussion and analysis of hypothetical problems and positions thus is something that is often conducted in Book II of the *Mabāḥith* and the *Mulakhkhaṣ*. We return, in Chapter 5, to some aspects of his discussion of form-matter analysis in the *Mabāḥith*.

It is interesting that Book III, which treats special metaphysics or theology, is by far the shortest book in both works. It discusses proofs for the existence of the Necessary Existent and then properties or "attributes" of the Necessary Existent. Significantly, Rāzī places the Neoplatonic cosmological question of emanation in Book III and not Book II, as part of the discussion on the manner in which divine acts proceed (*ṣudūr al-af'āl*) from

³¹¹ Rāzī, *Mabāḥith*, II, 53.

God. Here, he examines and dismisses Avicenna's interpretation of emanation.³¹²

Crucially, his alternative, it might be noted, is not simply to affirm a willing Creator.

Rather he attempts to assess whether cosmological contingency is absolute or not; that is, whether all things other than God are absolutely contingent or not. Here he attempts to formulate a theory which accounts for the initial cosmic conditions, which are absolutely contingent and are required for secondary conditions to obtain.³¹³ That is, the secondary conditions are not absolutely contingent but require a particular configuration of the initial or prior cosmic conditions (which he seems to interpret as unchanging or constant phenomena). The initial conditions seem to be something like the circular motion of the heavens.³¹⁴ But what is important here is that Rāzī does not map this model directly onto the present sensible world, as the *falāsifa* map the emanationist model directly onto the Ptolemaic model of the universe. That is, Rāzī intends his model to be general, providing only an *a priori* metaphysical model that may apply to the structure of any world. All this requires further analysis but I mention this point in a preliminary way to show that, even in Book III, Rāzī attempts to follow his programme. Indeed, he begins the book by stating that most of the premises required in this book are established in the previous books.³¹⁵

³¹² Rāzī, *Mabāḥith*, II, 529-535.

³¹³ Rāzī states, "There is nothing to prevent [the possibility] that all contingent things are dependent on God, but they are of two kinds." The first kind is that whose contingency applies to its quiddity in such a manner that contingency itself is sufficient for it to proceed from God without condition (*bi-lā shart*). For the second category, however, the nature of its contingency is not sufficient for it to proceed directly from God. Rather, its quiddity presumes "the obtaining of other things prior to it obtaining, so that the prior things are preparatory (*muqaddima*) for the causes to obtain in the posterior things." Ibid., II, 535. This is a brief outline. Rāzī discusses this position in more detail in other works.

³¹⁴ Some aspects of the discussion in the *Mabāḥith* is clarified in *Lubāb al-Ishārāt*, ed. °A.H. °Aṭiyya (Cairo, 1355 A.H.), 106-108.

³¹⁵ Rāzī, *Mabāḥith*, II, 491. Here, it can be noted that Book I concerns the Necessary Existent. It might be speculated that as opposed to natural phenomena, which is a subset of contingent things, the Necessary Existent was examined simply by reference to the concepts of contingency and necessity. As such, the analysis of problems here does not proceed in the inductive and quantitative manner of the analysis in Book II. Moreover, resolving the problem of the act of creation and emanation seems to be viewed by Rāzī as being indeterminable from the perspective of sense perception and the analysis of natural phenomena. In

Still, what he intends more precisely by setting out this new cosmological model in Book III needs investigation.

The above analysis establishes, I believe, an important development in the history of philosophy and science. That is, Rāzī's model of philosophy provides a new framework for the philosophical study of natural phenomena. What is most significant is that, in Rāzī's view, the proper study of natural phenomena involves the logical tools and epistemological principles that aim to remain neutral to questions of essences or noumena, in contrast to the Aristotelian system. Rāzī attempts to provide an alternative to the Aristotelian approach to the foundational principles that inform the study of natural phenomena. The alternative, in his view, will not carry the epistemological and ontological baggage of the Aristotelian system. Although a systematic study is required to assess the overall impact of Rāzī's innovations in natural philosophy, the very nature of Rāzī's restructuring of philosophical discourse, at least in theory, opens up possibilities in exploring new scientific theories and approaches to the study of natural phenomena. Particularly important are those views that were not viable scientific options to those working within the Aristotelian system. Here I will briefly discuss and list examples of the kinds of divergences that might have led to new avenues of scientific inquiry.

Let us turn to Rāzī's approach to problems that specifically regard the study of the natural world. In Chapter 5, I will assess how Rāzī argues against form-matter analysis and against the Aristotelian view of nature as the fundamental principle of change. Moreover, Rāzī will attempt to formulate a notion of elemental and natural forms (*al-*

this regard, see, for example, his discussion of the debate between God as a willing agent and as a necessary cause, *Mabāḥith*, II, 508-515. There Rāzī clearly departs from the traditional *kalām* approaches to the problem. He seems to view both positions (or the dichotomy) as problematic. His own views on the nature of time seem to complicate both views.

ṣuwar al-ṭabīʿiyya) as constant properties that are inductively found to apply to a body. What establishes such results are proof (*dalīl*) and induction more generally. Crucially, Rāzī can defer here to results by those who specialize in the scientific study of a particular area of study of natural reality. In Chapter 6, I show that his views of the various theories of optics draw on the specific scientific approaches. However, as is often the case in Book II, Rāzī proceeds by clarifying certain metaphysical assumptions in the Aristotelian view, as we have already seen above with regard to the case examples of quality and body. In this way, Rāzī seems to bring the *falāsifa* into conversation with the scientists in Book II. In Chapter 6, I argue that his objection to the Aristotelian view of perception as involving form-transference and form-impression is based on new developments in optics. Here, Rāzī cites the authority of the great optician and scientist, Ibn al-Haytham (d. 1040).

However, Rāzī is not a working scientist. Rather, he attempts to interpret the philosophical consequences of the scientific results established by Ibn al-Haytham. This, I argue, leads to Rāzī's development of a philosophical theory of perception that departs from the Aristotelian theory of form-transference or *simulacra*. As such, Rāzī will reassess the nature of our knowledge of complex quiddities and suggest that it is more dependent on mental processes than is permitted by Avicenna's theory of mental forms. I will not determine whether philosophy or science comes first here, but it is quite clear that Rāzī pays close attention to the cutting edge of scientific developments. Moreover, his epistemological and logical programme permits him to admit such scientific results and to pursue, on that basis, philosophical alternatives that radically depart from the *falāsifa*.

The following are points that can be noted from Book II of the *Mabāhith* and the *Mulakhkhaṣ*, which suggest that Rāzī explores new scientific directions in a serious manner. Given the length of Book II, I provide the most salient problems that I have thus far found, though I cannot explore even these points in any detail here. The following problems are raised in Book II:

1. In considering the question of the “natural” place of a body, Rāzī seriously considers the thesis of Thābit b. Qurra (d. 901) who argues, against the Aristotelian position, that larger bodies attract smaller bodies. Indeed, Rāzī speaks on Thābit’s behalf to respond to a number of objections. Rāzī finds that a number of problems remain on each side and states that this requires resolution (*yajib an natafakkara fī ḥall hadhi al-shukūk*).³¹⁶ What is significant here is that considering both possibilities as viable options is entirely consistent within his system and can, theoretically, lead to shifts in philosophical or cosmological views. No prior or overarching principles will tip the scale in favour of any particular avenue of scientific inquiry.
2. As mentioned, Rāzī attempts to construe the nature of the continuity of body or extension in a manner that does not posit the metaphysical postulates of indivisibles or form and matter.
3. Rāzī does not view the celestial realm as being necessarily incorruptible and eternal, though the spheres exhibit constant motion.

³¹⁶ Rāzī, *Mabāhith*, II, 71.

Rāzī raises a number of objections to the view that celestial bodies are essentially different from sublunary bodies.

4. He affirms the possibility of multiple worlds.³¹⁷ Indeed, Rāzī will use the notion of possible worlds to object to the necessity of the natures of the elements.³¹⁸

5. As will be discussed in Chapter 6, Rāzī finds arguments for abstractness or immateriality of the soul inconclusive. He states that we are only entitled to affirming our “self-consciousness”. This bears consequences for the role of abstraction and immateriality in approaching the study of natural phenomena, as well as for psychology.

Regarding the history of Rāzī’s philosophical works, Eichner has examined aspects of their influence on post-classical thinkers. The *Mulakhkhaṣ*, in particular, was seminal to the development of a number of works in the later philosophical tradition, such as Athīr al-Dīn al-Abhārī’s (d. 1265) *Hidāyat al-Ḥikma* and al-Kātibī al-Qazwīnī’s (d. 1276/1277) *Ḥikmat al-ʿAyn*, which received numerous commentaries and glosses. Although we know very little of the philosophical value of such works, a notable development in them is the restructuring of the various parts and categories as topics of philosophical study. One of the advantages of viewing the structure of Rāzī’s works as informed by a larger philosophical agenda is that the subsequent history of philosophical works in the post-classical period (specifically those that depart from the structure of Aristotelian sciences)

³¹⁷ *Mabāḥith*, II, 152.

³¹⁸ *Mabāḥith*, II, 150.

can be made more intelligible. That is, such post-classical thinkers can be viewed as extending and recasting philosophical problems on their own terms.

I return now to the relation of the *Mabāḥith* and the *Mulakhkhaṣ* to the *Maṭālib*. Shihadeh has noted that, in the *Mulakhkhaṣ*, Rāzī rejects the notion advanced by the *falāsifa* that the highest pleasure can be attained through philosophical or rational investigations. Rāzī states:

We do not deny rational pleasure, nor that it is stronger than other [pleasures]. But this [i.e., that rational pleasure is stronger] is not provable by logical proofs (*al-adilla al-manṭiqiyya*). Nevertheless, not all that cannot be proved in this way should be rejected, for if someone tries to point out (*ḥāwala al-dalāla* °*alā*) the tastes of things or their smells, it would not be possible for him (*la-ta* °*adhdhara dhālika* °*alayhi*), even though sense perception (*al-ḥiss*) affirms their [existence] (*yashhabu bi-ithbātihā*). These rational pleasures are of the same kind[...].³¹⁹

Rāzī, here, directly invokes the results of his logical programme, quite precisely in the manner that I have suggested above. That is, even the sensible simples, which are subject to the rule of *Indefinability of Sensibilia*, have some noumenal quiddity that is beyond the phenomal quality affirmed by the senses. The lesson he takes from this is that we cannot rationally affirm or deny the position of the *falāsifa*.³²⁰ This corroborates my view of the *Mulakhkhaṣ* and the *Mabāḥith* as attempting to set out a metaphysically neutral space.

Here, the metaphysical neutrality extends even to the theological notion of human

³¹⁹ Rāzī, *Mulakhkhaṣ*, fol. 172a-172b. Cf. Shihadeh's treatment of the passage in "From al-Ghazālī to al-Rāzī," 36.

³²⁰ Rāzī states here that the charitable interpretation of the *falāsifa*'s approach (*wa-l-ẓāhir min ḥāl al-ḥukamā*...) is that they take the arguments (*al-wujūh*), which he analyzed before his conclusions made above, simply as exhortations (*al-mushawwiqāt*) and not as logically rigorous proofs.

perfection and salvation. That is, philosophy proper, as set out in the *Mabāhiṭh* and the *Mulakhkhaṣ*, does not presume to deal with such matters. Here, the measure of neutrality is based on his logical analysis.

However, Rāzī ventures here a suggestion regarding human perfection, which is quite remarkable. That is, he provides an interpretation of rational perfection that is based on an inductive argument (*al-istiqrāʿ*) regarding the nature of sensible phenomena. I cannot examine this argument in full here. However he makes a few brief points that are of interest. He states that there is a tendency towards perfection that is observable by induction and there are various degrees of perfection in the world (*marātib al-kamāl*). He also states that “knowledge of God is only obtained by human intellects by means of [our] knowledge of His acts (*afʿālihi*), and the more one knows of His acts and the more complete one’s grasp of His wisdom, the more complete is one’s love for Him and the more complete is one’s pleasure in loving Him.”³²¹ Rāzī does not expand here on these points. But it should be noted that the context here is that these are not absolute or logically rigorous proofs.³²²

Although he offers this alternative account of perfection in Book II, it seems to be placed better in Book III. In fact, in Book III, particularly of the *Mabāhiṭh*, Rāzī has one chapter in the final section devoted to prophecy. The chapter argues why there must be a prophet (*fī annahu lā budda min al-nabī*). Significantly, Rāzī does not invoke the discussion of miracles, which in *kalām* works, including in his *Nihāya* and *Arbaʿīn*, are the proofs for prophecy. Here, Rāzī is addressing the question of why there needs to be a prophet at all. Again, I will not go into the details of the argument. What is important is

³²¹ Ibid., 172b.

³²² Indeed, Rāzī goes on to prescribe practical, rather than rational or spiritual methods to attain a deeper knowledge of such matters.

that Rāzī draws a connection between the perfection or order of the world in general and the requirement that human society needs to be perfected. His discussion is an indication that if the known characteristics of a prophet lead to the perfection of worldly order, then, just as Providence does not neglect the elements of natural order, he would not neglect the perfection of human society. I will return to tie up the discussion in the *Mulakhkhaṣ*, after first discussing a few points in the *Maṭālib*.

In the *Maṭālib*, Rāzī advances a proof for prophecy that he states departs from the previous approaches that depend specifically on the notion of miracles.³²³ Here, Rāzī expands on the few brief points he made in the *Mabāḥith* and develops the notion of the prophet as the perfecter of morality and social order. Here, Rāzī invokes induction again and points to the very structure of the natural order. For example, he states that we know inductively that there are three primary types of natural things: minerals, plants and animals. And we know that animals are more perfect than plants, and that the latter are more perfect than minerals. That is, there are degrees of perfection observable in nature. However, humans can be more perfect than all the natural kinds, but can also be worse than them all. That is, unlike the natural kinds, individual of the species of humanity can differ with regard to the perfection of their kind, even to great extremes. If, however, a perfect human is the most perfect instance of a natural kind, then there must be some further thing that would maintain the perfection of the species generally. This, at least, is the argument in sum.

What is important here is that the argument expands on what was stated in the *Mabāḥith*. Moreover, Rāzī repeats throughout the work a point echoed in the

³²³ Rāzī, *Mabāḥith*, 8, 103-108.

Mulakhkhaṣ, “The more one knows the acts of God, the more complete one’s knowledge of Him is.” Shihadeh has suggested that Rāzī “downgrades” the role of the study of natural reality or the sciences in his later philosophical theology, particularly the *Maṭālib*. That is, Rāzī does not believe that knowledge of natural reality or creation helps to achieve spiritual perfection. I believe Shihadeh suggests this because there is no separate section devoted to physics in the *Maṭālib*, as he notes. However, there are lengthy books devoted to time, place, body, eternity and origination, and on celestial and sublunary bodies. In fact, these parts constitute the bulk of this theological work. However, what Rāzī does in the *Maṭālib* is to press all these discussions of topics of natural philosophy into the service of theological knowledge. Indeed, the entire book is explicitly restricted to theology (*al-‘ilm al-ilāhī*), as the title states.

What Rāzī does in the *Maṭālib* is to expand topics proper to Book III of the *Mabāḥith* and the *Mulakhkhaṣ*. The study of natural phenomena in Book II that were dealt with systematically and neutrally according to his logical programme are now brought into the service of spiritual insight and perfection. This is very clear, for example, in his discussions of time and the celestial intellects. That is, he sees that insight into them could yield great spiritual advancement. In general, Rāzī seems to follow his inductive and quantitative approach to problems here as well. For example, he states regarding proofs for the existence of God that if multiple proofs are added to a persuasive proof (*al-iqnā‘ī*), one’s belief can be strengthened to the extent of being certain (*al-jazm wa-l-yaqīn*). He states, “Dialectic can replace demonstration in providing certainty.”³²⁴ Rāzī quite clearly does not mean the kind of certainty required by the Aristotelians. Rāzī

³²⁴ Rāzī, *Maṭālib*, 1, 239.

takes the same approach in his argument regarding the nature and order of the celestial spheres and intellects.

However, at the same time, he will invoke verses to strengthen his case and often appends a number of scriptural sources to bolster his list of proofs. It is clear that this philosophized but dialectic theology is not necessarily aimed at negating, or even advancing from, his views in the *Mabāḥith* and the *Mulakhkhaṣ*. Indeed, in a number of important places – such as the question of time and place – his position in the *Maṭālib* repeats his results in the *Mabāḥith* and the *Mulakhkhaṣ*. Moreover, his epistemological principles, especially the notion that we only have knowledge of phenomenal regularity (a point established in Chapter 6 building on the above analysis) are invoked in his discussion of prophecy and affirmed generally in his approach to the analysis of natural phenomena.³²⁵ Nowhere are his arguments based on a logical or deductive approach that proves the true natures of things. However, Rāzī is not being neutral here. Rāzī is exploring to what extent a dialectic and inductive approach, particularly to sensible phenomena, can prove useful to spiritual perfection.

I turn now to a final point regarding Rāzī's approach in the *Mabāḥith* and the *Mulakhkhaṣ*. Recent studies on Ghazālī show that Ghazālī developed a sophisticated alternative view of causality and cosmology.³²⁶ Indeed, there does seem to be close connections between Rāzī and Ghazālī. However, with regard to the study of natural phenomena, there is a clear difference. Rāzī's emphasis is on setting out an

³²⁵ Rāzī, *Maṭālib*, 9, 97-98.

³²⁶ Frank Griffel, *Al-Ghazālī's Philosophical Theology* (Oxford: Oxford University Press, 2009); Jon McGinnis, "Occasionalism, Natural Causation and Science in al-Ghazālī," in *Arabic Theology, Arabic Philosophy: From the Many to the One: Essays in Celebration of Richard M. Frank*, ed. J.E. Montgomery (Leuven: Peeters, 2006), 441-463; Kukkonen, Taneli. "Possible Worlds in the *Tahāfut al-Falāsifa*: Al-Ghazālī on Creation and Contingency." *Journal of History of Philosophy*, 38 (2000), 479-502.

epistemological and logical programme for the study of natural phenomena, which arises out of his intense engagement with the Aristotelian theory of science. Rāzī's focus in most of Book II is on exploring the phenomenal nature of natural reality, and attempting to provide alternative views based on his epistemological principles. Ghazālī's focus however is ontological and, more specifically, Ghazālī wants to set out an alternative theory of causality or cosmology that is consistent with theological doctrine. However, these ontological problems are ones that Rāzī treats in Book III of the *Mabāḥith* and the *Mulakhkhaṣ* in a limited way, as we saw above.³²⁷ As suggested, one upshot of this “epistemological turn” that Rāzī advances is that it leaves the working scientist free to employ neutral methods and tools of inquiry. Rāzī's influence on the later intellectual tradition, however, is something that requires further study.³²⁸

³²⁷ This is not to say that Rāzī's approach was developed *ex nihilo* or in an intellectual vacuum. Rather, I believe a broader assessment of the intellectual history – which not only examines the context of *falsafa* and *kalām* but a wider scope of intellectual and scientific works and the interrelations between them – is required. It is notable that in many of his works, Rāzī addresses not simply the *falāsifa* and the *mutakallimūn*, but the *‘ulamā’* and *ḥukamā’* in a more general manner. Indeed, these terms are included in a number of the titles of his works. Recent works have attempted to look seriously at philosophical and cosmological systems that are alternatives to those of the *falāsifa*. See Sabra, “*Kalām* Atomizism as an Alternative Philosophy to Hellenizing *Falsafa*.” In *Arabic Theology, Arabic Philosophy: From the Many to the One: Essays in Celebration of Richard M. Frank*. Ed. J.E. Montgomery. Leuven: Peeters, 2006, 199–272; Dhanani, *The Physical Theory*. One avenue that remains to be explored is the interaction between *kalām* and the scientific alternatives that were developed by working scientists like Ibn al-Haytham and al-Bīrūnī. The tradition of critique or aporias (*shukūk*) in the scientific tradition are parallel to the approach and intuitions of Rāzī in the *Mulakhkhaṣ* and the *Mabāḥith* with regard to the philosophical tradition.

³²⁸ Recent work on astronomy has shown that later astronomers do in fact follow a programme that avoids the assumptions imported from Aristotelian metaphysics. See for example, F. Jamil Ragep, “Freeing Astronomy from Philosophy: An Aspect of Islamic Influence on Science,” *Osiris* (2001), 49–71. It should be noted that I do not suggest that Rāzī is enthusiastic, or even optimistic, about empirical or scientific research. He may primarily be interested in “hard science” only insofar as he can derive philosophical results that resolve his problems with Aristotelian philosophy. My analysis in Chapter 6 suggests that he is certainly interested in the philosophical results. His attitude towards hard science, however, requires investigation. See also A. I. Sabra, “Science and Philosophy in Medieval Islamic Theology.” *Zeitschrift für Geschichte der Arabisch-Islamischen Wissenschaften* 9 (1994), 1–42.

Postscript: Logic, Instrumentality and Neutrality

In late antiquity (from the 3rd to the 5th century AD), Aristotelian commentators cast the question of the relation of logic to philosophy primarily in terms of whether logic was an instrument (*organon*) or a part of the philosophical sciences, a problem that had originated in differences between Peripatetic and Stoic views of logic and dialectic.³²⁹ In fact, understanding the precise philosophical role of logic in the eyes of the ancient commentators involves considerations that go well beyond this particular dispute, but I shall focus here on specific issues that relate directly to the problems we raised earlier.³³⁰

The commentators viewed a set of Aristotle's works, which they called the *Organon*, as providing a systematic treatment of logic.³³¹ The books of the *Organon* consisted of the following works studied in this order: *Categories*, *De Interpretatione*, *Prior Analytics*, *Posterior Analytics*, *Topics*, and *On Sophistical Refutations*. The justifications advanced by the late-antique commentators for its order and unity are worth reviewing. Logic, they deemed, was primarily about demonstration, which was treated in the fourth book, i.e., the *Posterior Analytics*. The three preceding works were viewed as preliminary to the *Posterior Analytics* because they examined three elements involved in demonstrations: terms, propositions, and syllogisms.³³² *Categories*, *De Interpretatione*, and *Prior Analytics* were thus viewed as treating terms, propositions, and syllogistic form

³²⁹ See Richard Sorabji, *The Philosophy of the Commentators, 200-500* (Ithaca, N.Y.: Cornell University Press, 2005), I, 31-32; Katerina Ierodiakonou, "Aristotle's Logic: An Instrument, not a Part of Philosophy?", in *Aristotle on Logic, Language and Science*, ed. N. Aveglis & F. Peonidis ((1997), 33-53.

³³⁰ On this see especially A. C. Lloyd, *The Anatomy of Neoplatonism* (Oxford: Clarendon Press, 1990), 1-85.

³³¹ Though this did not mean that they ceased debating whether or not logic is an instrument of philosophy. The debate turned from problems between Peripatetic and Stoic views to problems relating to the reconciliation of Aristotle and Plato.

³³² Sorabji, *Commentators*, 31-32.

respectively. The order of these works was grounded in the semantic relations of these elements. That is, singular terms were studied first since they make up the more complex linguistic items, propositions, which are next in order since they in turn make up a syllogism. The semantic theory of the preliminary works was rooted in the innovations of Porphyry, whose *Isagoge* served as an introduction to the *Categories*. Importantly, the commentators agreed that the *Categories* served as the proper introduction to logic and philosophy as a whole, even if they differed as to what precisely the *Categories* was about. That is, it was widely disputed whether the singular terms studied in the *Categories* were simply linguistic items (terms), concepts, concrete objects, or some combination thereof. This ambiguity with respect to the precise semantic content of the objects studied in the preliminary works, particularly the *Categories*, naturally raised several questions about the nature of logic, especially to what extent the semantics of the *Organon* requires extra-logical commitments, a point we return to shortly.

In the Islamic world, the approach of the ancient commentators to the *Organon* provided the general context for the study of Aristotelian logic.³³³ Although Avicenna inherits this general approach, he diverges from his predecessors in a number of apparent ways. Avicenna considers the question of whether logic is an instrument or a science ultimately inconsequential, but he is worried by a number of confusions that might arise in related discussions, including, for example, mistaken notions concerning the subject-matter and parts of logic. More significantly, Avicenna seems to be the first philosopher

³³³ Although of course his *Rhetoric* and *Poetics* came to be added to the *Organon* as its last two books. See Deborah Black, *Logic and Aristotle's Rhetoric and Poetics in Medieval Arabic Philosophy* (Leiden: E.J. Brill, 1990); Maroun Aouad, Marwan Rashed, "L'exégèse de la *Rhétorique* d'Aristote : Recherches sur quelques commentateurs grecs, arabes et byzantins", *Medioevo* 23, 1997, 43-189.

since late antiquity to question the status of the *Categories* in the *Organon*.³³⁴ By contrast, Avicenna's more immediate predecessors, Abū al-Faraj ibn al-Ṭayyib and al-Fārābī, posit the *Categories* as the first of the books studied in logic. Ibn al-Ṭayyib, for example, states that the first book of the eight books of logic (i.e., the *Organon*) is the *Categories* (*kitāb qāṭīghūrīyās*) that “treats the subject-matter (*mawḍūʿ*) of logic which are simple terms that refer to the highest genera (*al-ajnās al-ʿāliya*).”³³⁵ Fārābī also includes the *Categories* as the first book of logic in his *Enumeration of the Sciences*.³³⁶ In another treatise, he adds, “Of those [books] [one] learns the parts of a premise used in a demonstrative syllogism (*burhān*) in his book on definition named *Categories*.”³³⁷ This statement follows Fārābī's general discussion of what precedes the study of philosophy and more immediately what precedes and follows the study of the science of demonstration (*al-Burhān*). In justifying the order of those works that are “preliminary” to demonstration, Fārābī roughly follows the logic of the commentators.³³⁸ Indeed, in much of this, Avicenna's Islamic predecessors seem to follow the Greek commentators closely. Importantly, Ibn al-Ṭayyib and Fārābī take a particular stance on what the first book of logic is about. The *Categories* is not simply about *terms* but about *things* and

³³⁴ See A. Sabra, “Avicenna on the Subject Matter of Logic,” *Journal of Philosophy*, 77 (1980), 746-764. See for example Avicenna, *Madkhal*, 15-16, 21-24. The problem has a long history, see for example sources translated in Sorabji, *Philosophy of the Commentators*, 56-60.

³³⁵ Abū al-Faraj ʿAbd Allāh ibn al-Ṭayyib, *Tafsīr Kitāb al-Maqūlāt*, ed. and trans. by Cleophea Ferrari (*Der Kategorienkommentar von Abū l-Faraj ʿAbdallāh ibn aṭ-Ṭayyib*) (Leiden: Brill, 2006), ʿ (the Arabic text is paginated by the Arabic-Indic numerals).

³³⁶ Fārābī, *Iḥṣāʾ al-ʿUlūm*, ed. ʿAlī Bū Maḥmūd (Beirut: Dār wa-Maktabat al-Hilāl, 1996), 45.

³³⁷ Fārābī, *Risāla fī mā yanbaghī an yuqaddam qabla taʿallum al-falsafa*, in *Alfārābī's philosophische Abhandlungen*, ed. F. Dieterici (Leiden: E. J. Brill, 1890), 52. It is peculiar that Fārābī seems to refer to the *Categories* as the book on definition. I am unaware of any precedent for this.

³³⁸ This, of course, contrasts with the views of modern interpreters of Aristotle who view the books of the *Organon* in a different light. Even those who consider the books of the *Organon* as united in some way take the *Categories* and *De Interpretatione* as leading up to the *Topics* rather than the *Analytics*. See for example Miles Burnyeat, *A Map of Metaphysics Zeta* (Pittsburgh: Mathesis Publications, 2001), 106-111; Stephen Menn, “Metaphysics, Dialectic and the *Categories*”, *Revue de Métaphysique et de Morale* 100 (1995), 311-337.

more specifically about the most general kinds of things there are. As Ibn al-Ṭayyib states, the *Categories* is about “simple terms that refer to universal *things* constituting the highest genera according to first imposition (*al-waḍʿ al-awwal*) [i.e., the assignment of a meaning of a term] *and* as things are in themselves (*al-umūr bi-ḥasbihā*).”³³⁹ In offering this view of the *Categories*, Ibn al-Ṭayyib explicitly states that he is following the view of Iamblichus, who opposes but synthesizes the views of Alexander (existent things), Ammonius (mental concepts), and Porphyry (linguistic terms). The qualification, “in themselves”, seems to add much to the semantic content of simple terms as treated in the *Categories*. That is, simple terms do not refer by first imposition to things or signify concepts – a position Rāzī, for example, would be comfortable with – but involve both insofar as they pick out the primary kinds of things that furnish the world.³⁴⁰

Avicenna agrees that the *Categories* is about terms that refer to the most general kinds of things that encompass or apply to all existents (*tahwī al-mawjūdāt*).³⁴¹ But precisely because of this, Avicenna is led to question the status of the *Categories* as constituting a proper part of logic.³⁴² He argues in I.1 of his own book on the categories

³³⁹ Ibn al-Ṭayyib, *Tafsīr*, ١٨.

³⁴⁰ Of course, this need not necessarily be the case. For example, Porphyry’s actual view has been interpreted as involving all three items as well (i.e., terms, concepts, and things) without committing to a deeper ontology of forms or essences. Here, his theory would be based on a view of concept formation and abstraction that deals directly with sensible things. In any case, it is not important how neutral Avicenna’s predecessors saw their semantics as being, for reasons that will become clear below, but it does suggest that the semantic theory can be quite powerful, and more powerful than Rāzī would allow. The role of collection and division in providing definitions that do not simply *distinguish* the definiendum from other things but locate its essence suggests this. With regard to the ancient commentators, A. C. Lloyd suggests that the semantic theory required for definition is minimal and can be seen simply as a part of elementary Boolean set theory; see *Anatomy*, 8-9. On Porphyry, see S. Ebbesen’s reconstruction in “Porphyry’s Legacy to Logic”, in R. Sorabji, *Aristotle Transformed: The Ancient Commentators and their Influence* (London: Duckworth, 1990), 141–171. Cf. Lloyd, *Anatomy*, 36-75. Lloyd provides a reconstruction that attributes to Porphyry an even more neutral semantics.

³⁴¹ Avicenna, *al-Shifāʾ, al-Mantiq, al-Maqūlāt*, ed. G. Anawati, M. al-Khuḍayrī, & A. F. al-Ahwānī (Qum: Maktabat Āyat Allah al-ʿUẓmā al-Marʿashī al-Najafī, 1405 AH), 6.

³⁴² Though whether this amounts to a real divergence in views of logic awaits a fuller assessment. It is curious that Avicenna’s discussion seems to indicate that this was perhaps a matter raised before him. See

in *al-Shifā'* that if the *Categories* were included in logic, it should only play a minor role, namely by *positing* the categories rather than *proving* them (i.e., proving the completeness of the list of categories, the exclusivity of each category and so on).³⁴³ The proof of the natures of existent things (*ṭabā'ī^c al-mawjūdāt*), that is, the highest genera and their states (*aḥwāl*), is something one can “only seek to grasp fully (*bi-l-istiṣā'*) by arriving at the level of science called First Philosophy.”³⁴⁴ In his view, one can in theory move directly from the discussion of the five predicables in the previous book (that is, his *Madkhal*, which is a significantly expanded version of Porphyry's *Introduction* to the *Categories*) to the study of definitions, judgments and syllogisms in the following books.³⁴⁵ For Avicenna, then, a thorough investigation of the categories is a task that falls on the metaphysician and not the logician.³⁴⁶ However, what this precisely means for him

Maqūlāt, 7. His point however may be interpreted as arguing that his predecessors' “aversion” to viewing the categories as about things rather than terms indicates that it should not have a full role in logic. Still, it is clear that Fārābī, for example, discusses the nature of the categories in other works like *Kitāb al-Ḥurūf*, suggesting that, like Avicenna, there is a posited version at the beginning of logic and a scientific study of the categories later. See Stephen Menn, “Al-Fārābī's *Kitāb al-Ḥurūf* and His Analysis of the Senses of Being”, *Arabic Sciences and Philosophy* 18 (2008), 68. On Avicenna, see Sabra's analysis, which corroborates the points made above though he provides only brief remarks regarding the role of the *Categories* (“Avicenna on the Subject Matter of Logic”).

³⁴³ For example, he states: “The one who authored (*wāḍi'*) this book did not do so for the purpose of instruction (*ta'lim*) but on the basis of positing and imitation (*al-waḍ' wa-l-taqlīd*)...the aim of this book is for you to believe by postulation and acceptance (*i'tiqād^{an} mawḍū'^{an} musallam^{an}*) that there are ten things which are the highest genera that encompass [all] existents and to which singular terms refer, and to know that one of those [categories of the highest genera] is substance and that the remaining nine are accidents, without demonstrating for you that the nine are accidents.”

³⁴⁴ Ibid.

³⁴⁵ Avicenna is, however, conciliatory towards the tradition and advises the reader not to get too excited on the matter and call the *Categories* an “imposter” (*dhakhīl*) in the topic of logic. That is, he says one can follow the traditional ordering of the *Organon* provided one takes into account his provisos. See *Maqūlāt*, 6. Following the traditional manner of exposition is something he does in a number of places; see for example *Madkhal*, 43, 65.

³⁴⁶ Curiously, however, Avicenna proceeds in the following sections of his *Maqūlāt* to discuss, often extensively, ontological problems relating to the nature and adequacy of the ten Aristotelian categories. Moreover, in the later books, such as the *Metaphysics*, Avicenna refers back to the discussions in the *Maqūlāt* (see especially Books II and III of the *Metaphysics*, where Avicenna discusses substance and accidents). How precisely Avicenna had intended the two works to be related is a matter that awaits further study. Some of these topics in the *Maqūlāt* have been examined by Allan Bäck who suggests that Avicenna attempts to solve ontological problems regarding, for example, the nature of relations and Aristotle's “four-fold” distinction. In addition to these, Avicenna discusses numerous other questions such as the mutual

with regard to the semantic parts of logic is a point we shall return to after discussing Rāzī.

Rāzī is aware of Avicenna's view of the *Categories* and his comments on the matter are of significance. I will focus on remarks in his *Sharḥ al-Ishārāt*. In the logic section of that work, Rāzī refers to the *Categories* in connection with this brief point made by Avicenna: "So logic is a science in which kinds of inferences (lit.: movements; *intiḳālāt*) from things that obtain in the mind of a person to things that [one] seeks to obtain and the states (*aḥwāl*) of those things (*umūr*)..."³⁴⁷ Rāzī comments specifically on Avicenna's point, i.e., "the *states* of those things", and interprets those states as relating to quiddities in the mind, i.e., the state of a quiddity as being subject, predicate, genus, differentia and so on. Rāzī then states, "As for *teaching* the natures (*ḥaqā'iq*) of those things [i.e., genera, differentiae, and so on], it is found in the *Categories* (*Kitāb al-Qāṭighūrīyās*)...and since the Shaykh believes that the *Categories* is not a part of logic, he of course states that logic investigates inferences and the *states* of things from which inferences [proceed] and did not state that logic investigates those *things* in which those states occur."³⁴⁸ That is, logic concerns our knowledge of inferences and those states of things insofar as they relate to inferences and not insofar as they relate to things as they are, i.e., their natures.³⁴⁹ None of this is immediately suggested in Avicenna's brief

exclusivity of substance and accident, the number of categories, the nature of accidents, defining the nature of the types of qualities, and the nature of primary and secondary substances, which, as discussed below, clarify his positions in metaphysics. See Bäck, "Avicenna on Relations and the Bradleyan Regress", in *La tradition médiévale des catégories (XII^e-XV^e siècles)* eds. Joël Biard and Irène Rosier-Catach (Paris : Peeters, 2003), 69-84 and his "The Ontological Pentagon of Avicenna," *The Journal of Neoplatonic Studies*, 2 (1999), 87-109.

³⁴⁷ Rāzī, *Sharḥ al-Ishārāt*, I, 18.

³⁴⁸ Ibid.

³⁴⁹ This and the following discussion invoke the problem of the proper subject-matter of logic, but I shall leave that aside to avoid straying too far from our primary concern in this chapter.

remarks in the *Ishārāt*; Avicenna does not in fact mention the *Categories* anywhere in the logic part of the *Ishārāt*.

In the next section, Avicenna provides a brief pointer that concerns how simple terms become a part of composite (linguistic) items. Avicenna states that the logician needs to know simple terms *not in every way but in whatever way composition might properly occur to them*. Commenting on this seemingly harmless qualification, Rāzī provides the analogy of the builder of a house who need only seek out the singular items – i.e., brick, wood, etc. – insofar as they are the parts that compose a house. He states that the builder need not know whether the bricks or wood are made of indivisible parts or matter and form. He then adds,

If you have understood that, know that those who include the *Categories* in logic, argue that logic investigates the composition of singular terms *in a specific manner*, so it is necessary to know those singular items which are the highest genera. But the Shaykh rejects this by [stating] that one who investigates composition (*tarkīb*) must investigate those aspects that are prepared to receive composition (*taʿlīf*), and here that is the investigation of their generality [i.e., being a genus], differentiability, essentiality, accidentality, subject-hood and predicate-hood. As for the investigation of the essences of those things, their natures, how they divide into their species, and their propria, this falls outside of logic. Indeed, the

logician does not benefit from that whatsoever except insofar as he will be able to provide numerous examples for every topic.³⁵⁰

Rāzī's discussion seems to draw on Avicenna's *Maqūlāt* and *Madkhal*. Rāzī's point that logic concerns the states of quiddities in the mind corresponds to points made in the first few paragraphs of I.1 of the *Maqūlāt* regarding what was discussed in the *Madkhal*. Moreover, it is telling that the reference to *aḥwāl* or states as applied to singular terms invokes for Rāzī, as shown above, the question of the status of the *Categories*. *Aḥwāl* is what Avicenna uses in his discussion in the *Maqūlāt* regarding those aspects of singular terms that fall outside of or within logic; for example, he states, "Singular terms have other *aḥwāl*, which is their referring to existent things in one of the two modes of existence which we clarified when we introduced the subject-matter of logic [i.e., in the *Madkhal*] and there is no necessity [for the logician] to know those [*aḥwāl*]." ³⁵¹ These other states, specifically of quiddities in the mind and *in re*, are discussed in metaphysics and elsewhere. Even Rāzī's point that the *Categories* may serve a purpose in enabling the logician to provide examples corresponds to a line in the *Maqūlāt* that states the same. ³⁵² As shown on numerous occasions above, this provides further evidence that Rāzī's understanding of Avicenna is not limited to the *Ishārāt* and that he draws on Avicenna's other works, especially the *Shifā'*. Below, we shall show stronger evidence that Rāzī was well acquainted with the *Maqūlāt* and other books of the *Shifā'*, which he drew on in his own works as well as in his commentary on the *Ishārāt*. Moreover, it should be stressed

³⁵⁰ Ibid., 20.

³⁵¹ Avicenna, *Maqūlāt*, I, 1, 4.

³⁵² Ibid.,

that Rāzī was familiar with these debates in the *falsafa* tradition, even if the depth of that familiarity needs assessment.

Returning to Avicenna, his position on the *Categories* seems to diverge from the accounts of Ibn al-Ṭayyib and Fārābī.³⁵³ But, for a number of reasons, it is unclear what Avicenna's concerns about separating logic from the investigation of metaphysical problems really amount to. I focus here on what might be termed "external" problems to Avicenna's exposition of logic, that is, problems that concern the neutrality of logic to the extra-logical commitments of Aristotelian philosophy, such as form-matter analysis.

First, Avicenna's exposition of logic seems committed to a number of matters that would make a non-Aristotelian such as Rāzī uncomfortable. One example of this is Avicenna's discussion in *Demonstration* of how genus and species relate to the matter and form of a thing, which imports the hylomorphic analysis that Aristotle reserves for his discussions in *Metaphysics* and elsewhere. As Miles Burnyeat has argued, Aristotle consciously excludes any reference to form-matter theory in the works of the *Organon*, not because the works predate the theory, but because of Aristotle's insistence on the neutrality of logic to particular domains of inquiry.³⁵⁴ Perhaps more surprisingly,

³⁵³ However, it is crucial to note that the history of this debate needs investigation before we can be certain that there is in fact a disagreement, or at least one that is non-trivial. Avicenna does not refer to the views of his predecessors in depth as does Ibn al-Ṭayyib, but he does draw more generally on their attitudes towards the *Categories* to support his own view. He states for example that "the astute logicians" find it repelling to discuss the nature of existent things in this book and that the original version of Aristotle omits the metaphysical discussion of the categories, presumably suggesting that it is meant only to posit or illustrate examples of the categories rather than to prove them (see *al-Maqūlāt*, I, 1, 7). His point of course may simply be that his predecessors' "aversion" to viewing the categories as about things rather than terms indicates that it should not have a full role in logic. Still, it is clear that Fārābī, for example, discusses the nature of the categories in other works like *Kitāb al-Hurūf*, suggesting that, like Avicenna, there is a version set out at the beginning of logic and a metaphysical study of the categories later, though it is not clear whether Fārābī would have seen them as "posited" in any way. See Menn, "Al-Fārābī's *Kitāb al-Hurūf*," 68.

³⁵⁴ Burnyeat argues that adopting Aristotle's logical method did not necessarily commit one to more specific views arrived at in Aristotelian physics or metaphysics, as is often assumed. Though his "logical" approach did not exclude ontological matters entirely, Aristotle's original aim was to set out a neutral tool

Avicenna raises questions relating to form and matter as early as the *Madkhal*, that is, that part of logic that deals with the semantics of singular terms and, more specifically, terms important in the composition of definitions. With regard to differentia, for example, Avicenna discusses the constitutive nature of “rationality” (i.e., *nutq* and not simply being a subject of the attribute “rational” or *nātiq*) which involves a number of ontological issues raised regarding the “natures” of things in V,1 and elsewhere of *Ilāhiyyāt*, as discussed in detail shortly below.³⁵⁵ He states, “This [type of the differentia, i.e., the real differentia (*khāṣṣ al-khāṣṣ*)] is like the rationality of man, for when the power that is named ‘the rational soul’ [i.e., the substantial form] joins with matter, and the animal then becomes rational, [the constituted individual] is prepared to receive knowledge, skills...”³⁵⁶

It is important, however, not to prejudge the matter and particularly so if we consider that Avicenna often chooses to balance between the “accretions” of the received Peripatetic tradition and his own view of how philosophy ought to be structured.³⁵⁷ Despite these seemingly extra-logical intrusions, the evidence suggests that Avicenna was

for philosophers to use on a reasonably wide range of philosophical problems. According to Burnyeat, it was certainly, and intentionally, neutral with regard to form-matter analysis, which is central to discussions in his physics and metaphysics. In the same way, Avicenna may indeed have been trying to work out a *relatively* neutral logic. His various attempts at separating his own concerns regarding the *Categories* illustrate some awareness of the problem. For a developmental account of Aristotle’s views, see D. Graham, *Aristotle’s Two Systems* (Oxford: Clarendon Press, 1987).

³⁵⁵ See McGinnis, “Logic and Science,” 174-178.

³⁵⁶ See *Madkhal*, 75. Form-matter analysis is also seemingly raised in his discussion of genus and species as well, see *Madkhal* 53, 56-57. However, these discussions need not necessarily imply a heavy-duty form-matter analysis and might just be ways of illustrating aspects of the essential/part versus accidental/non-part nature of the distinctions.

³⁵⁷ That is, we need a better grasp of the philosophical context, specifically how and to what extent Avicenna desires a neutral system vis-à-vis his predecessors. The commentators in fact continued to debate ontological matters, like the status of universals ante-rem, in re and post rem, in their commentaries of Porphyry’s *Introduction*.

trying to work out a relatively neutral logic.³⁵⁸ Whatever the case, this does not seem to matter because Rāzī demands a logic that is significantly more neutral than what Avicenna is ready to offer, as we saw above. Though Rāzī would certainly expect neutrality with respect to a full-fledged form-matter analysis, his primary objection concerns epistemology, specifically regarding the semantics of definitions, and not the ontological import of the logical discussions – though ontological concerns also came up in his discussion of universals particularly in the *Mulakhkhaṣ*. In the *Maqūlāt*, for example, Avicenna raises the question of whether “mortal” or “walking” in contrast to “rational” is the constitutive differentia of a thing or one of its non-constitutive concomitants (*lawāzim*), a solution for which he stresses should be sought elsewhere (i.e., this again is a matter for metaphysics). Avicenna is concerned here with specific cases of potential “overlap” (*tadākhul*) between constitutive and accidental differentia and not with the nature of differentiae *per se*.³⁵⁹ Rāzī, however, applies the problem more generally to the possibility of arriving at real differentiae at all or, more broadly, to our ability to locate essentially constitutive properties of things as set out in real definitions.

³⁵⁸ In addition to his discussion of *Categories*, on numerous occasions in the *Madkhal*, he points to matters that are to be investigated further in metaphysics (see for example *Madkhal*, 72). The intrusions can be explained in a number of ways. In I.12 of the *Madkhal*, Avicenna clarifies the relationship between logical, natural and intelligible universals. Thus when Avicenna discusses natures, he expects the readers to know where and how ontological imports enter the logical discussion. Another alternative explanation is that the form-matter analysis was neutral enough to include a spectrum of ontological views that only ranged from Platonist to Aristotelian.

³⁵⁹ Specific questions regarding division need to be sorted out elsewhere but the role of division itself is central to logic and specifically definitions. This is clear even in I.1 of *Maqūlāt* where in addition to those “states” applying to singular terms that are investigated in the higher sciences, Avicenna mentions a number of states that fall within logic, including the method of division that allows one to “acquire” what is unknown by definition. Proper division, he states, moves from genera to species by means of differentia, preserving the proper order. This certainly does not commit one to a full-blown form-matter analysis but, from an epistemological perspective, it seems to commit one to a relatively strong version of representative realism.

Part II: Ontology, Epistemology & Psychology

Chapter 5

Against Aristotelian Metaphysics: Essences, Form, and Matter

In this chapter, I examine Rāzī's discussion of the quiddity (*māhiyya*) in Chapter 2 of Book I of the *Mulakhkhaṣ* and the *Mabāḥith*. I begin with his first section (*faṣl*) in Chapter 2 (specifically *Mabāḥith* I.2.1) devoted to the quiddity and its "concomitants" (*lawāḥiq*).³⁶⁰ My analysis of the text aims to show that I.2.1 accurately summarizes the primary points in V.1 of the Avicenna's *Ilāhiyyāt* of the *Shifā'*.³⁶¹ However, Rāzī's summary is not meant to provide a neutral rehashing of Avicenna's text. Rather, Rāzī carefully appropriates those elements in Avicenna's discussion that are consistent with his own view, particularly in relation to his epistemological and logical programme as outlined above, and excises or qualifies those elements that he views as problematic or irrelevant to the problem of quiddity. Moreover, Rāzī adds a passage of his own that departs radically from anything found in Avicenna's text. The passage will make clear,

³⁶⁰ As we shall see, *lawāḥiq*, here, corresponds to Avicenna's notion of those mental and extra-mental properties that apply to the quiddity in itself (which he discusses especially in V.1 of the *Shifā'*) and not the more specific sense of "concomitants" or *lawāzim* which was used by Rāzī in our above analysis, i.e., the extra-mental properties of a structured universal.

³⁶¹ As noted above, Avicenna uses the phrase "*umūr 'āmma*" or "common things" in the title of V.1. But Avicenna here seems to mean universals of different kinds (universals simpliciter, genus, differentia, species, so on) and their properties (i.e., things that apply universally). Rāzī's use of *umūr 'āmma* is quite different. It corresponds more to a discussion of "transcendentals", though his approach diverges from the medieval scholastic discussion in the Latin world because it is not driven primarily by problems of Aristotelian metaphysics. See Chapter 4 above for more on the role of Book I and *umūr 'āmma*. See Jorge J. E. Gracia, "The Transcendentals in the Middle Ages: An Introduction", *Topoi* 11 (1992), 113-120.

contrary to Avicenna's implied position in V.1, that properties are not predicated of the quiddity in itself in the manner of *per se* predication. I then turn to a number of questions relating to Aristotelian form-matter analysis and especially as it applies to parts of the definition, namely, the genus and differentia. Rāzī here will argue more generally against form-matter analysis.

In his philosophical summa, *al-Mabāḥith al-Mashriqiyya*, Rāzī begins his analysis of quiddities with problems that closely parallel those raised in V.1 of Avicenna's *Ilāhiyyāt* of the *Shifā'*, which includes a discussion of Avicenna's threefold distinction of quiddity in itself, quiddity *in intellectu*, and quiddity *in re*.³⁶² In fact, aside from the final paragraph which begins with "Know that..." ("wa-*ʿlam anna...*"), Rāzī's chapter reads much like a summary of the central themes of Avicenna's considerably longer chapter, even to the extent that Rāzī's wording and examples closely match those of Avicenna (e.g., *farasiyya*, *insāniyya*, *lā bi-sharṭ* and *bi-sharṭ-lā*). The primary points Avicenna raises in V.1 can be summed up as follows: (1) distinguishing quiddity in itself from universality and other concomitants (paragraphs 1-4); (2) (sophistical) questions regarding the positing of quiddity in itself and (logical) responses (paras. 5-14); (3) an objection stating that the affirmation of quiddity in itself entails affirming its separate (*mufāriq*) existence and two responses to the objection (paras. 21-27 and 18); (4) the relation of quiddity in external things to quiddity in itself, and different aspects of

³⁶² Avicenna discusses the triplex distinction of quiddities in a number of other places, as noted in Part 1. See Marmura, "Quiddity and Universality in Avicenna," in *Neoplatonism and Islamic Thought*, ed. P. Morewedge (New York: State University of New York Press, 1992), 77-87; *ibid.*, "Avicenna's Chapter on Universals in the *Isagoge* of his *Shifā'*", *Journal for the History of Arabic Science*, 4 (1980), 239-251.

quiddities *in intellectu* (paras. 28-30).³⁶³ In paragraphs 15 to 20, Avicenna summarizes and recasts the preceding discussion, while anticipating in paragraphs 17 and 18 solutions to the objection raised in paragraph 21. Rāzī's discussion provides an apt and systematic summary of the central points that Avicenna raises in V.1.³⁶⁴ The nature of his summary suggests that he was intimately familiar with the text of V.1 and that he recognized its philosophical nuances.³⁶⁵

Still, Rāzī's abridgment diverges from Avicenna's treatment in a number of significant respects. There are, for example, several striking omissions and additions. First, Rāzī entirely omits the discussion of the *universal* (*al-kullī*) as dividing into three kinds, and the examples of each kind, which Avicenna sets out in the introductory paragraph of the chapter. Further, Rāzī omits most of the ontological and psychological points that Avicenna raises in paragraphs 28 and 29, and distances himself implicitly and explicitly from the latter's points, as we shall see. The first omission might simply be a matter of brevity, but there are reasons indicating that Rāzī intends more by leaving out Avicenna's tripartite division of universals. Rāzī, for one, discusses universals, and

³⁶³ Avicenna, *Metaphysics*, 148-157 (the paragraph numbers I refer to are those marked in Marmura's edition cited above); Cf. Avicenna, *al-Najāt*, ed. °Abd al-Rahmān °Umayra, vol. 2 (Beirut: Dār al-Jīl, 1992), 71-73.

³⁶⁴ (1*) Like Avicenna in (1), Rāzī distinguishes a quiddity *qua* quiddity from concomitants such as unity, plurality, and non-existence, pp. 139 to 140 (ln. 1-9). However, he does not discuss the division of universals nor does he use the terms universality (*kulliyya*) as does Avicenna in the introductory paragraphs.

(2*) Rāzī discusses the precise questions raised to problematize quiddity in itself, using the same example as Avicenna: (1) Is horseness (qua horseness) A or not-A?; (2) Is X one or many? (That is, two affirmatives that are contradictories only in potentiality). The response concerns whether one places the negation prior to or after reduplication in (1) and whether one responds at all in (2). See p. 140 (ln. 9-21) to 141 (ln. 1).

(3*) Rāzī raises the same objection regarding the denial of the separate existence of quiddities and provides that same responses, the first one being the solution Avicenna refers to (at para. 23, ln. 13) as the previously discussed solution found at paragraphs 18 to 19. See p. 141, ln. 2-17.

(4*) Rāzī devotes only one line to Avicenna's ontological and epistemological points raised especially in 28 and 29. See, p. 141 (ln. 24) to 142 (ln. 1).

³⁶⁵ As shown below, where Rāzī concurs with Avicenna, he generally follows the order of Avicenna's text, summarizing points quite faithfully, but he does rearrange the text once to make it more readable.

specifically their division, in his logical works. Indeed, in the *Mabāḥith*, Rāzī states explicitly that a number of chapters in Book I are connected to his analysis of related points in his works of logic.³⁶⁶ For example, in his conclusion to the chapter presently under discussion, Rāzī says that a better understanding of the problems regarding quiddities is obtained by supplementing what is mentioned in this chapter with what he has discussed in his logic. He makes a similar point at the end of his chapter on contingency and necessity.³⁶⁷ However, Rāzī's own division of universals differs significantly from Avicenna's, which suggests that the omission is not simply a matter of the proper division or treatment of topics; rather, it seems to be symptomatic of a deeper philosophical disagreement he has with Avicenna. In the following discussion, we will assess the division of universals in Avicenna and Rāzī before returning to Rāzī's more philosophically significant omissions and additions regarding the ontological and psychological points made in paragraphs 28 and 29. Further, the analysis of Avicenna's threefold division of universals will help illustrate some of the inherent tensions,

³⁶⁶ In the *Mabāḥith*, Rāzī refers to positions he has established in logic (*mā awradnāhu fī al-manṭiq*) on a number of occasions, but it remains unclear which work of logic he has in mind. He concludes his chapter on quiddity, which is the subject of this chapter, by stating that when one supplements what is mentioned in this chapter with what he has discussed in logic, then one will obtain a comprehensive understanding of all the problems regarding quiddity. He makes a similar point at the end of his chapter on necessity and contingency. The references indicate a relatively lengthy work. The most likely candidate is the expanded version of *al-Āyāt al-Bayyināt (al-Kabīr)*, whose survival remains uncertain. That there is such a work is suggested by Rāzī's reference to *al-Āyāt al-Bayyināt* in the logic of *Lubāb al-Ishārāt*, where he states one can find a complete discussion of mixed modal syllogisms in the former work. However, in the available version of *al-Āyāt al-Bayyināt (al-Ṣaghīr)*, Rāzī states that, although he will mention some points on the matter, a full discussion of mixed syllogisms is beyond the scope of this epitome (*mukhtaṣar*). In fact, the discussion of mixed syllogisms in the *Lubāb* is more extensive. This suggests that there is, or was, a lengthier version of *al-Āyāt al-Bayyināt*. The expanded version is also referred to by Ibn Abī Uṣaybi'a in *ʿUyūn al-Anbāʾ fī Ṭabaqāt al-Aṭibbāʾ* and Ḥājjī Khalīfa in *Kashf al-Zunūn*. Another possible candidate is *al-Manṭiq al-Kabīr*, multiple manuscripts of which seem to be extant. See references in M. Ş. Zarkān, *Fakhr al-Dīn al-Rāzī wa-Ārāʾuh al-Kalāmiyya wa-l-Falsafīyya* (Cairo: Dār al-Fikr, 1963), 86-87, 91.

³⁶⁷ Moreover, Rāzī references his logical discussion in various other places as well. For example, in his chapter on necessity and contingency, Rāzī warns of confusing logical contingency with contingency discussed here in philosophy. He states, "[Making clear] this distinction (*tafṣīl*) is necessary for investigating the reality of the necessary and possible thing." *Mabāḥith*, 1, 208. In his philosophical compendium, *al-Mulakhkhaṣ fī al-Ḥikma wa-l-Manṭiq*, he states: "Knowledge of this distinction will save one from many confusions (*shubuhāt*)." *Mulakhkhaṣ*, Berlin Staatsbibliothek Ms. or. oct. 629, fol. 55.

particularly from Rāzī's viewpoint, that are implicit in Avicenna's more fundamental distinction of the threefold status of quiddities.

To begin with the introductory discussion of universals in V.1 of *Metaphysics*, Avicenna divides universals, or general terms that signify universals, into those that refer to: (a) multiple individuals in actuality, e.g., 'man'; (b) multiple individuals in potentiality and possibility though there may be no actual instances of them, like 'heptagonal house' (dodecahedron in *al-Ishārāt* and icosahedron in *al-Madkhal*); and (c) only one individual in actuality though for reasons external to the term itself, like sun or earth (that is, the latter universal applies to many in itself but not more than one in actuality, potentiality or possibility). It is unclear whether Avicenna had intended this tripartite division to be rigorous or whether he meant the division simply to be a general illustration of the relevant kinds of universals. Nonetheless, it is the one that he adheres to in nearly all the works in which he does provide a division of universals.³⁶⁸ At first glance, the division seems to be formulated to exclude universals that have no instances at all, for example, those that refer to fictional or impossible entities. We might, however, include a fictional concept such as "phoenix" under a universal of type (b) since, like heptagonal house, it might *always* fail to refer to actual instances. Avicenna, however, describes fictional concepts or forms (sing.: *ṣūra*) as those that are impossible (*muḥāla*), which seems to mean that instances of, say, phoenix cannot possibly occur in the external

³⁶⁸ In *al-Ishārāt* Avicenna provides the same examples except that dodecahedron is given for heptagonal house and, moreover, each example is related explicitly to potentiality/actuality *and* possibility, with which I have supplemented the above account in *Metaphysics*. See *Sharḥ al-Ishārāt*, I, 45. The same division is found in the *Madkhal*, 26. It should be noted that discussion of these examples and division in *Demonstration* suggests that this is the division relevant to demonstrative knowledge and thus used in *Metaphysics* or alluded to in logic. He has a slightly different version in *al-Najāt*: he provides the examples of man and sun, which fall into a dyadic division of universals into those predicated of many *in existence* and those predicated of many as *permitted by estimation* (*fī jawāz al-tawahhum*). Still, what is permitted by estimation is not the instantiation of the universal simpliciter but the instantiation of more than one; see *Najāt*, 1, 12; same as in *Madkhal*, p. 28.

world.³⁶⁹ But (b)-universals are, as Avicenna indicates, those that are possibly instantiated.³⁷⁰ So if a phoenix is just as much a logical possibility as is a heptagonal house, in what sense then is the phoenix an impossible form?³⁷¹ Here a number of controversial, and largely unresolved, questions concerning Avicenna's notion of modality come into play.³⁷² But these will have to be set aside. They are, in fact, the very philosophical problems regarding logical and "physical" modality that have long troubled interpreters of Aristotle.³⁷³ What is significant for our discussion is the status of

³⁶⁹ Avicenna states: "If the imagination did not intervene, a form opposed to the real would not arise at all in the intellect." J. Michot, "L'Épître sur la disparition des formes intelligibles vaines après la mort d'Avicenne," *Bulletin de Philosophie Médiévale*, 29 (1987), 157.29-30 (critical edition and French translation; hereon *Letter on the Soul*; translations are my own); cf. *Demonstration*, I.6, 26. D. Black has argued that knowledge of fictional entities poses a number of problems within the larger context of Avicenna's philosophical system. With regard to his psychological epistemology, Avicenna's explanation of the existence of fictional forms *in intellectu* seemingly conflicts with his views on abstraction. That is, the standard view commits Avicenna to holding the independence of the intellectual faculty in acquiring universals from the activities of the faculties of estimation (*wahm*) and imagination. Although abstraction prepares the mind to receive the universals, the cause and source of the universal itself is the Active Intellect. D. Black, "Avicenna on the Ontological and Epistemic Status of Fictional Beings", *Documenti e studi sulla tradizione filosofica medievale*, 8 (1997), 425–453. *Letter on the Soul*, 155.10-11; 156.19-21. This seems to accord with his position in *Demonstration*, noted above, that such universals have no real ontological status and thus only nominal definitions can be given of them (see *Demonstration*, I.6, 26). This, then, accords with the Aristotelian position that only (physically) existent things have essences, a position Averroes accuses Avicenna of rejecting by positing the quiddity in itself. See Stephen Menn, "Farābī in the Reception of Avicenna's *Metaphysics*: Averroes against Avicenna on Being and Unity," in *The Arabic, Hebrew, and Latin Reception of Avicenna's Metaphysics*, ed. A. Bertolacci & D.N. Hasse (Berlin: de Gruyter, 2012), 51-96.

³⁷⁰ Unless Avicenna means one-sided possibility (he uses *jā'iz* in *Metaphysics* and *imkān* and *quwwa* in *Pointers*), which is unlikely particularly considering the formulation in *Pointers*.

³⁷¹ The secondary division that Avicenna provides is of individual terms that pick out universals insofar as those universals are predicated of particulars either in existence or as posited by estimation. "Man" and "sun" serve respectively as examples for this division.

³⁷² Avicenna's definition of (b)-universals that seems to permit unactualized possibilities undermines the principle of plenitude: that is, all that is possible must exist *in re* at some point. But is he committed to some weaker version of the principle of plenitude? What, moreover, is the relation between logical modality and Avicenna's (metaphysical) use of modal terms in texts like *Metaphysics* I.5? With regard to heptagonal house and phoenix, the distinction between artifact and species is important in the Aristotelian context. An artifact is contingent on human will, and on the final cause of the action (i.e., a mental form), while the existence of the species is not. With Avicenna, in the context of emanationism, the two may be distinguished in that the species is contingent ultimately on divine will. Here, there is the sticky issue of the role of Divine Will in Avicenna; see Jules Janssens, "Creation and Emanation in Ibn Sīnā," *Documenti e Studi sulla Tradizione Filosofica Medievale*, 8 (1997). 455 - 477.

³⁷³ Seminal works on Aristotle's views on modality, plenitude, and temporality are: J. Hintikka, *Time and Necessity: Studies in Aristotle's Theory of Modality* (Clarendon Press, 1973); S. Waterlow's *Passage and Possibility: A Study of Aristotle's Modal Concepts* (Oxford: Oxford University Press, 1984).

Avicenna's notion of the quiddity in itself. As suggested above, Avicenna never seems to refer to *māhiyya* when referring to fictional or impossible entities. He does refer to (mental) form, *ṣūra*, or even conception (*taṣawwur*), and suggests that we apprehend fictional entities in a derivative or fabricated manner, rather than through the process of psychological abstraction.³⁷⁴ All this suggests that Avicenna keeps to the Aristotelian line that essences or quiddities apply primarily to real substances, despite his distinction between essence in itself and existence, a position reinforced in his discussion of unreal entities in *Demonstration*.³⁷⁵ In this light, Avicenna's division of universals can be read as illustrating those universals that correspond to proper or real quiddities, and hence excluding non-existent or impossible items. That is, Avicenna could certainly provide a more comprehensive division, but the context suggests, to Avicenna, that the relevant division is the threefold division.³⁷⁶ Avicenna's point that universality is a property that is external to the quiddity in itself but which occurs to quiddities in the mind, expounded in V.1, seems to presume that we are talking about *real* rather than fictional quiddities. Thus adding fictional entities in the initial division of universals may be confusing from an Avicennan/Aristotelian perspective. If this is so, Avicenna would need to distinguish what is *real* from existence *in re* and existence *in intellectu*, since the quiddity can be *real* or fictional, irrespective of its being viewed as externally or mentally instantiated. I do not wish to resolve the matter here but, in the context of Rāzī's analysis of V.1, it can be

³⁷⁴ Avicenna states: "If the imagination did not intervene, a form opposed to the real would not arise at all in the intellect." See n. 369. Avicenna's theory of abstraction will be discussed in the next chapter.

³⁷⁵ See, *Demonstration*, I.6, 26, and above.

³⁷⁶ That Avicenna provides the same division in logic is perhaps significant in the context of Rāzī's critique and logical programme. The Aristotelians view logic as preparatory for the higher philosophical discussions, so notions specific, say, to metaphysics were introduced, particularly by the commentators, as long as it was noted that such matters are not properly studied in logic, as discussed above.

noted that Avicenna seems to indicate such a distinction by invoking emanationism.³⁷⁷ In the *Madkhal*, Avicenna states,

T19

In general, it may be that the intelligible form (*al-ṣūra al-ma^cqūla*) is a cause (*sabab*) in a certain way (*bi-wajhⁱⁿ mā*) for the obtaining of the form that is found in individuals (*li-ḥuṣūl al-ṣūra al-mawjūda fī al-a^cyān*). And it may be that the form that is found in individuals is a cause in a certain way of the intelligible form, that is, [the intelligible form] only obtains in the intellect after it obtains in individuals. Because the relation (*nisba*) of all existent things to God and his angels is [like] the relation of the artifacts which we have to the creating soul [*al-naḥs al-ṣāni^ca*], that which is in the knowledge of God and his angels contains by way of the *reality* (*ḥaqīqa*) of what is known and perceived of natural things, is existent before multiplicity (*al-kathra*), and every intelligible [thing] from it is one entity (*ma^cnā wāḥid*) and then to these entities there occurs existence in multiplicity, so that [the entity or *ma^cnā*] obtains in multiplicity and [the entity] is not a unity [when it obtains] in [multiplicity] in any manner whatsoever.³⁷⁸

Here, Avicenna seems to want to distinguish existence *in intellectu* (or specifically in the human intellect) and existence *in re* (or more accurately in individuals) from the

³⁷⁷ Avicenna, *Madkhal*,

³⁷⁸ Avicenna, *Madkhal*, 69.

existence or reality that may be said to apply independently of the two. In a passage in paragraph 28 of V.1, Avicenna will invoke a parallel distinction between *al-wujūd al-ilāhī* (or *al-ṭabīʿa* simpliciter) and *al-wujūd al-ṭabīʿī*.³⁷⁹ We will return to Avicenna's points in this passage in our analysis of Rāzī's abridgement of it. With regard to **T19**, Avicenna speaks of existence in individuals (i.e., *al-aʿyān* or concrete reality), which seems to be distinct from the reality (*ḥaqīqa*) that precedes multiplicity. And both are distinct from existence *in intellectu*. On the face of it, then, the binary distinction between existence *in re* and existence *in intellectu* seems to get complicated within a broader ontological context. In any case, we are getting ahead of ourselves, since there are several important distinctions Avicenna makes in V.1 that need to be considered before assessing these problems. It might be noted, however, that Rāzī's terminology will depart from Avicenna's, signaling a more fundamental divergence in their ontological views.

In his commentary on the logic of Avicenna's *Ishārāt*, Rāzī points out that Avicenna's tripartite division of universals might be expanded to include a fourth type: phoenix, that is, any universal whose instances do not obtain in existence whatsoever. Rāzī, however, does not state that such universals are impossible, nor does he deny their impossibility. He simply states that universals such as "phoenix" are that of which not a single instance obtains in existence.³⁸⁰ Here, Rāzī seems to view Avicenna's (b)-universal, which Avicenna describes in the *Ishārāt* as a universal that applies to multiple individuals in potentiality and possibility (*bi-l-quwwa wa-l-imkān*), as one that will be actualized at some point although there are no current instances, for otherwise there would remain no clear distinction between (b)-universals and the extra kind of universals

³⁷⁹ Cf. Menn and Wisnovsky, "Yahyā ibn ʿAdī's *Essay on the Four Scientific Questions*".

³⁸⁰ *Sharḥ al-Ishārāt*, 1, 45.

that Rāzī suggests adding.³⁸¹ In any case, following his suggestion to add a fourth category, Rāzī points out: “In sum, terms referring to effects in the soul (*al-āthār al-naḥsāniyya*) that are not connected to external existents are [certainly] universals, even if one [individual instance] of those conceptions does not come to be in [external] existence.”³⁸² There is no hint in Avicenna’s text of matters relating to psychology. Rāzī seems to raise this point to underscore the tensions that arise from Avicenna’s division of universals. The force of Rāzī’s statement suggests that he is affirming a point that contravenes Avicenna’s position, (or, at least, a point that might be inferred from Avicenna’s division). In fact, Rāzī’s reference to “effects on the soul” evokes Avicenna’s discussion of the status of fictional forms and the role of the soul in producing universals of fictional entities, which can be found outside of the text he comments on here in the logic of the *Ishārāt*. Avicenna states in his *Letter on the Soul* regarding the fictional form of phoenix: “If the imagination did not intervene, a [universal] form opposed to the real would not arise at all in the intellect.”³⁸³ In the treatise, Avicenna is at pains to explain the intelligibility and universality of such forms, given his commitments to several psychological principles central to his theory of abstraction. The treatise also makes explicit how such problems are related to his ontological commitments. Avicenna states, for example, that, “It is *not possible* for these forms to exist in the eternal and perpetual things and the active intellects,” a point which echoes Avicenna’s discussion in **T19**.³⁸⁴ Because of the problems that fictional entities pose to Avicenna’s ontological and psychological system, his consistent omission of fictional universals in his tripartite

³⁸¹ This suggests he views Avicenna as holding to the principle of plenitude.

³⁸² *Sharḥ al-Ishārāt*, 1, 45.

³⁸³ *Letter on the Soul*, 157.29-30

³⁸⁴ *Ibid.*, 156.17-18.

division of universals is probably the result of a deliberate choice. Rāzī's commentary might be viewed as an intervention, opposing the encroachment of such ontological and psychological matters on the logical discussion, though this is speculative, at this point. That following discussion, however, provides evidence to corroborate this interpretation of what Rāzī is attempting to do in his commentary.

Whatever the case, Rāzī's own division of universals differs significantly from that of Avicenna. In the *Mulakhkhaṣ*, Rāzī provides a more exhaustive categorization that rests on the relations that hold between a universal, the modality of its instantiation, and the size of its extension. Significantly, potentiality and temporality have no role in Rāzī's division of universals as they do in Avicenna's. Moreover, the modality of the instantiation of a universal is treated differently. Rāzī divides universals into six:

- (1) impossibly existent (the partner of God);
- (2) possibly existent but its actual existence is unknown (a wall made of rubies);
- (3) a universal with [only] one instance which is necessary (God);
- (4) a universal with [only] one instance, even if other instances are possible (sun);
- (5) a universal with finite multiple instances (planets);
- (6) a universal with infinite instances (man).³⁸⁵

Rāzī's division of universals is more expansive than that of Avicenna. The principles of his division seem to differ as well. Most significant are (2) and (4). Avicenna regards universals like "sun" as necessarily having only one instance. That is, based on a necessitarian and emanationist view of the Ptolemaic astronomical system, he considers the occurrence of multiple suns as a cosmological impossibility. By stating that multiple

³⁸⁵ *Maṭīq al-Mulakhkhaṣ*, 25-26.

individuals in this category of universals can possibly obtain, Rāzī might be viewed as pointing to his own cosmological views. As discussed previously, and further below, Rāzī does not reject the Ptolemaic astronomical model from a phenomenalist perspective. However, he criticizes the metaphysical and physical assumptions of emanationist attempts at explaining the model's underlying causes and nature.

Rāzī's second category seems to correspond to Avicenna's (b)-universals.³⁸⁶ The question of which examples to use for unactualized possibilities has a long history that reaches back to Late Antiquity.³⁸⁷ But what is important here is how Rāzī interprets this category of universals. To Avicenna's (b)-universal, Rāzī adds the crucial qualification that the actual instantiation of (2)-universals is strictly a matter of our knowledge of their instances, and not related to causal or cosmological considerations that might further qualify their modality. That is, the category is meant to include *all* possible entities that, as far as we know, have no instantiation. With the qualification "is not known" (*lā yu'raf*), Rāzī is likely suggesting that all such possibilities are equal with regard to generation, which is consistent with positions he takes elsewhere on possibility and necessity (though the picture gets complicated since Rāzī distinguishes between mental possibility and objective possibility, as discussed below). Moreover, if we look back to his comments in *Sharḥ al-Ishārāt*, it would seem that Rāzī would place fictional universals, such as "phoenix" under universals of type (2). Avicenna could, of course,

³⁸⁶ Perhaps 'wall of rubies' is meant to add factors and constraints beyond just the mere will to make something, as would seem to be the case with Avicenna's heptagonal house.

³⁸⁷ Avicenna's substitution of heptagonal house for phoenix was already a departure from previous commentarial practice and many later authors in the Latin world revert to the phoenix, quite likely because they were aware of actual heptagonal edifices. According to a *ḥadīth* cited by al-Mas'ūdī (d. 957) and referring to pre-Islamic times, the 'anqā was created by God with all sorts of perfections but became a plague and was eliminated by some pre-Islamic prophet. In this version of the legend it becomes an extinct species. Perhaps for this reason, the 'anqā was avoided as an example of a non-existent by Rāzī. See Thérèse-Ann Druart, "Avicennan Troubles: The Mysteries of the Heptagonal House and of the Phoenix," *Topicos* (forthcoming).

accept the more systematic categorization offered by Rāzī, since his definition of universals does not exclude such a division. But Avicenna declines to do so, probably because it would require him to set his metaphysical concerns aside. The above discussion suggests that Rāzī is quite sensitive to such concerns.

Several unresolved questions raised by the above discussion need to be resolved by examining more substantive problems, particularly those raised by Rāzī's omissions and additions relating to paragraphs 28 to 30 of *Metaphysics* V.1. We now turn to Rāzī's analysis.

Quiddities: "Without Condition" versus "With the Condition of Nothing"

In this section I begin by focusing on some ontological distinctions that Avicenna raises in his discussion of quiddity in chapter V.1 of the *Ilāhiyyāt* and which are designed to complicate his threefold distinction of quiddities, particularly in the context of responding to a "Platonist" adversary of his.³⁸⁸ That is, Avicenna wants to maintain, contrary to a platonizing argument he raises in V.1, that the quiddity in itself is real, or corresponds to a "nature", without committing to the stronger thesis that it exists separately of its instances. In a sense, then, the primary problem in V.1 is the debate between Aristotelian realism and the particular brand of Platonism of these unnamed adversaries, who appear committed to the reality of separate forms. Avicenna's aim, as we will see, is to simply point, in a general manner, to aspects of how the quiddity in

³⁸⁸ On the background of Avicenna's predecessors, see Menn and Wisnovsky, "Yahyā ibn ʿAdī's *Essay on the Four Scientific Questions*." Marwan Rashed argues that Avicenna has a specific group of platonizing philosophers in mind (specifically Yahyā b. ʿAdī and his students); see his article, "Ibn ʿAdī et Avicenne: sur les types d'existants", in *Aristote e i suoi esegeti neoplatonici. Logica e ontologia nelle interpretazioni greche e arabe* (Atti del convegno internazionale, Roma, 19-20 ottobre 2001), ed. V. Celluprica & C. D'Ancona (Napoli: Bibliopolis, 2004), 107-171.

itself, which corresponds to the definitional properties of a thing (irrespective of the thing's existence), can be viewed as having a corresponding object – or, more broadly, an epistemological and ontological ground – in external and mental reality. Avicenna, as discussed above, distinguishes the characteristics that apply to a quiddity in mental existence from those characteristics that apply to a quiddity in external existence. The quiddity in itself, however, is viewed irrespectively of such characteristics. In V.1, Avicenna considers, in a general manner, how each of the two different modes of existence – i.e., existence in the mind and existence in individuals – has unique aspects (*anḥāʾ*) or properties. Central to his analysis of such questions, as we will see, is his distinctions of “*lā bi-sharṭ shayʾ*” (without the condition of anything) and “*bi-sharṭ lā shayʾ*” (with the condition of nothing), as applied to the quiddity in itself, the quiddity *in re* and the quiddity *in intellectu*. As we will see, Rāzī, not being either an Aristotelian or Platonist, will attempt to reframe the discussion on his own terms.

Though Avicenna's most explicit discussion of the distinctions that appear to complicate his threefold distinction is made towards the end of V.1 (i.e., in paragraph 28 quoted below), he already posits similar distinctions at paragraphs 16 to 18.³⁸⁹ The primary distinction in these paragraphs is between quiddities in themselves (e.g., *ḥayawān*) and quiddities “with” some thing (e.g., *ḥayawān wa-shayʾ*).³⁹⁰ He divides the latter type, i.e., quiddities with a superadded property, into multiple aspects including

³⁸⁹ Avicenna never states outright and simply in V.1 that there are three aspects (*iʿtibārāt thalāth*) of quiddities as he does in the *Madkhal*. This might suggest that the distinction is perhaps more suited for introductory logic than metaphysics, where it gets more complicated. Still, in both the *Madkhal* and his *Maqūlāt* he notes the ontological aspects of a quiddity in itself, as noted above in **T19**. See *Madkhal*, 66-68; *Maqūlāt*, 38-39.

³⁹⁰ To refer to quiddity in itself, Avicenna uses “*al-manẓūr ilā dhātihi bi-mā huwa huwa*”, “*al-insān bi-mā huwa insān*”, “*iʿtibār al-ḥayawān bi-dhātihi*”.

those “considered” as being *in re* and *in intellectu*.³⁹¹ Avicenna adds that a quiddity, which exists in mental or external reality, with a superadded property – i.e., a quiddity plus something extra – is a thing that has the quiddity in itself as a part (*ka-l-juzʿ*).³⁹² Avicenna means, here, that the mental or external instance of a quiddity, for example a certain concrete horse, is somehow *constituted* by a quiddity in itself, horse-ness, along with the appropriate superadded properties, a point we discussed above in the context of his logical discussions. In paragraph 18, he puts this more explicitly:

T 20

It is possible to consider ‘animal’ in itself (*bi-dhātihi*), even if it is *with* another, because its essence (*dhātuhu*) [though] *with* another remains itself. So its essence belongs to itself by itself, while its being *with* another is an accidental matter that occurs to it or is some concomitant of its nature (*ṭabīʿa*), as [is the case with] animality and humanity. *This aspect [of a quiddity as being in itself] is prior in existence to the animal that is [taken] as an individual with accidents or as a universal existing in re or in the mind in the manner that the simple is prior to the composite and the part prior to the whole.* And with this existence (*wujūd*), it is neither a genus

³⁹¹ It is important to note that Avicenna stresses the intentional nature of such superadded qualities as indicated in his use of such terms as *bi-ʿtibār*, *min jiha*, and *manẓur ilayhā*. He often uses the term “*tuqārīnu*” or “coinjoins with” or “*zāʿid*” to refer to the properties that apply or conjoin with the quiddity in itself. I shall use the term “superadded” to translate Avicenna’s various terms for this notion.

³⁹² He states: “It is known that if it is animal plus something, ‘animal’ is in both as a part [constitutive] of both.”

nor species, nor individual, nor one, nor many. Rather, it is with this existence animal only (*faqat*) and human only.³⁹³

Here, Avicenna explicitly assigns a certain reality to the quiddity in itself, which seems to conflict with his statements made earlier in the chapter that the quiddity in itself possesses only its definitional properties irrespective of existence.³⁹⁴ We shall soon return to how Avicenna will more precisely distinguish between the various kinds of existences.

Rāzī summarizes the above passage quite closely. However, he places his summary of 18 to what corresponds in place to Avicenna's paragraph 23, which follows a "feeble" problem raised in 21. The problem was presumably by some of Avicenna's contemporaries or immediate predecessors who tended to platonize universals. The opponent in 23 argues the following: (1) animal *qua* (*bi-mā huwa*) animal does not exist *in* individuals, but (2) animal *qua* animal exists, and thus (3) animal *qua* animal exists separately (*mufāriq*) from individuals. As noted above, Avicenna refers his reader in paragraph 23 to paragraph 18 for a solution to the first premise of this platonizing argument, specifically (1). Here, Rāzī is simply making the text more readable by reorganizing the order of these points that Avicenna raises. In paragraph 23, Avicenna states that the argument his opponent provides for (1) is based on the following error: "[T]he belief that that which exists with respect to 'animal', if it is a certain [concrete] animal (*ḥayawān^{an} mā*), is not the nature (*tabī^ca*) of animality considered in itself [and] without any further condition (*lā bi-sharṭ*) existing in it."³⁹⁵ The discussion in paragraph

³⁹³ The translation is my own.

³⁹⁴ See paragraph (4) in Marmura.

³⁹⁵ I am reading "considered in itself [and] without any further condition" (*mu^ctabarat^{an} bi-dhātihā lā bi-sharṭ ākhar*) as a qualifying *ḥāl* clause.

18, and specifically the point that the quiddity in itself is a part of a quiddity *in re*, presumably provides an answer to the error that a quiddity in itself is *not* in individuals. We will return to Avicenna's response shortly, but note that the question chiefly concerns the relation between a quiddity in itself and a quiddity *in re*; the quiddity *in intellectu* does not figure significantly into Avicenna's response to the platonizing argument.³⁹⁶ This, of course, makes sense, in this context, since the dispute between a Platonist and an Aristotelian will center on the correspondence and reducibility of universals to individuals. The reducibility of universals to mental or linguistic entities, i.e., nominalism of some form, is rejected by both camps.

Avicenna's language in V.1 is fairly consistent and it will do us good to take stock. First, Avicenna rarely uses *māhiyya* in this chapter and prefers to provide examples of quiddities in their abstract form, e.g., animality and humanity. For quiddity in itself, the qualifying term, "in itself", is rendered by a variety of phrases, including *fī nafsihā*, *bi-dhātihā*, *faqāṭ*, and *bi-ma huwa huwa* (which usually qualifies an example of a universal term). In V.1, Avicenna analyzes the threefold distinction with respect to nature (*ṭabīʿa*), specifically when discussing relations between a quiddity in itself and *in re*. A quiddity in itself, like animality and humanity, corresponds to the substantive "nature" (*ṭabīʿa*), as his usage clearly shows in the above passages and throughout the chapter (see, for example, paragraph 28 cited below). By contrast, a quiddity *in re*, which he usually describes as "a certain X" (e.g., *ḥawayan^{an} mā*), is properly referred to by a general term – i.e., "human" rather than the abstract term 'humanity' – but qualified with

³⁹⁶ Historically, the ontological problem of universals as debated between Aristotelian realism and Platonism did not generally deal with the problem of the mental status of universals. See Gabriele Galluzzo, "The Problem of Universals and its History. Some General Considerations," *Documenti e studi sulla tradizione filosofica medievale*, 19 (2008), 335-369.

the derivative adjectival form “natural” (*ṭabīʿī*), i.e., “natural human” (*al-insān al-ṭabīʿī*) or “natural thing” (*al-shayʿ al-ṭabīʿī*).³⁹⁷ Quiddities *in intellectu*, on the other hand, are referred to in a variety of ways including “intelligible form” (*al-ṣūra al-ʿaqliyya*) and quiddities “in the soul/mind/intellect” (*fī al-naḥs/al-dhihn/al-ʿaql*). A quiddity *in intellectu* is not qualified by any form of the term “nature” in Book V. Avicenna’s use of terms in the manner described above is also followed generally in the following chapter of Book V, though he will simplify by distinguishing “nature” or *ṭabīʿa* on its own from its occurrences with other properties, like *al-ṭabīʿa al-kulliyya* or *al-ṭabīʿa al-mawjūda fī al-ʿyān*.³⁹⁸

With regard to the challenge from the platonizing interlocuters, Avicenna’s crucial distinctions are those introduced at paragraphs 26 and 27, between quiddities “without the condition of anything” (*bi-lā sharṭ shayʿ*) and quiddities “with the condition of nothing” (*bi-sharṭ lā shayʿ*).³⁹⁹ The distinction underscores the point about the existence of abstract universals. Quiddities without condition (*bi-lā sharṭ*) are not abstracted (*mujarrad*) from all superadded properties or concomitants and so they can be said to correspond to those quiddities that are *with* another. On the other hand, he states that the quiddity with the condition of nothing applies only to what is in the mind, since otherwise the statement that “There are quiddities with the condition of nothing” would affirm the *external* existence of Platonic forms, which is impossible.

Avicenna says that the quiddity without any condition can be taken with or without qualification, i.e., there is no necessity attached to the condition. Construed thus,

³⁹⁷ See, for example, paragraphs 16 (“this is that which is *al-insān al-ṭabīʿī*”) and 28 (“that is *al-shayʿ al-ṭabīʿī*”).

³⁹⁸ See, for example, V.2, paragraphs 5, 7, and 9.

³⁹⁹ Paragraphs 16 to 17 in effect set out the threefold distinction.

a quiddity in itself and a quiddity *in re* would both seem to fall under quiddities without condition.⁴⁰⁰ As Avicenna reiterates throughout this chapter, the error lies in the opponent's failure to notice the logical distinction between stating "S is not P" and "S is a not-P". The former negation applies to the assertion and thus is a simple denial of a predication; the latter is a metathetic negation (*ʿudūl*), that is, an affirmative predication of a negated predicate.⁴⁰¹ Construed thus, for any quiddity in itself S, "S is not P" read as a *bi-la shart* should entail the denial of all properties (e.g., S is not P₁, S is not P₂, S is not P₃...) that might be applied to the quiddity S. However, Avicenna admits that definitional properties do apply to S, so the extension of *shayʿ* in *lā bi-shart shayʿ* is presumed to be limited to those things that are relevant to the discussion, i.e., existence in concrete or mental reality. However, there is a way of construing Avicenna's logical distinction without referring to such contextual considerations. That is, as noted in our discussion of the Aristotelian theory of predication, the proper kind of predication that applies in an Aristotelian science, and *a fortiori* in metaphysics, is essential or *per se* predication. If we construe "S is P" here as a *per se* predication (specifically an *el*-predication as discussed above) – i.e., "S is essentially P" where S is a proper essence and P is a constitutive property or part – then the *lā bi-shart* can be construed as simply denying external or accidental properties of the quiddity S. Reading the assertion as a *per se* predication prevents the denial of definitional properties, since it is impossible, on the Aristotelian

⁴⁰⁰ As suggested by Avicenna's phrasing: "For this reason, it is necessary that there is a distinction maintained between our saying, 'Animal qua animal (*bi-mā huwa ḥayawān*) is separate (*mujarrad*) without the condition of anything else' and our saying, 'Animal qua animal is separate/abstract with the condition of nothing else.'"

⁴⁰¹ On Fārābī's views of metathesis, see al-Fārābī, *Commentary and Short Treatise on Aristotle's De Interpretatione*, trans. and ed. F. W. Zimmermann (London: Oxford University Press, 1981), 98. Zimmermann notes that Fārābī's view of metathesis resembles the "Theophrastus' theory" of metathesis.

view, to deny that a constitutive part is predicated of the essence.⁴⁰² Avicenna's formulations in V.1 support this interpretation. For example, he states, "As for 'animal' abstracted without the condition of anything else (*lā bi-shārt shay' ākhar*), it has existence in individuals (*al-a'yān*) since it is *in itself and in its reality* (*fī nafsīhi wa-fī ḥaqīqatīhi*) without the condition of anything else, even if it has a thousand conditions that conjoin with it (*yuqārinuhu*) externally (*min khārij*)."⁴⁰³ The phrase "*fī nafsīhi wa-fī ḥaqīqatīhi*" quite clearly is meant to indicate that the predication is of the essence and is meant to contrast with "*min khārij*" – that is, the predication of properties external to the essence. Thus, Avicenna states in response to the platonizing argument which asserts that "animal" is either particular or common to many: "Rather, if 'animal' is considered *qua* 'animal' and from the perspective of its animality, it is neither 'particular' nor 'non-particular', which is [the same as] 'common'. Indeed, both can be denied of it, because with regard to its animality it is 'animal simpliciter' (*ḥaywān faqat*)."⁴⁰³ Several other passages in V.1 underscore the same point. Avicenna, of course, can presume *per se* predication in V.1 because his only opponents, the platonizers, accept essential predication.

On the other hand, a quiddity "with the condition of not or nothing", construed as "S is essentially a not-P", seems to affirm all non-P properties of S *per se*, in which case the affirmation of any P of S would lead to an impossibility, a result that is denied by Avicenna. That is, P, or properties external to S (such as being 'common', 'specific', 'in an individual' and so on), can, on the Aristotelian view, apply to S, but not necessarily. Curiously, however, Avicenna states that the quiddity with the condition of nothing can

⁴⁰² Here, the predication would be "by way of" rather than "in answer to" the quiddity, as Avicenna noted above.

⁴⁰³ Paragraph (26).

only be equated with mental forms. That is, the metathetic negation seems to be context specific, since, without qualification, the negation should also exclude ‘existence in the mind’, which as Avicenna states is also external to the quiddity. Here, for some reason, Avicenna restricts the set which ‘not-P’ seemingly should pick out (i.e., all external properties). Perhaps he does so in order to be able to view mental forms as abstract or *mujarrad* in some way (i.e., pure intelligible forms are abstracted from all such external properties and are identical, in some sense, with the quiddity in itself). Whatever the case, Rāzī will take him to task for restricting *bi-sharṭ lā* in this way, as we shall see.

As noted, Avicenna’s response can be seen as addressing a fundamental ontological problem regarding universals that reaches back to late antiquity and beyond. In fact, the core point of the “platonizing” argument, asserted in (1) and argued for subsequently, can be viewed as expressing the fundamental problem of universals, one that concerns the extreme realist just as much as it does the nominalist: What corresponds in reality to our general concepts or terms?⁴⁰⁴ The opponent of course thinks he can resolve the problem by positing separate universals, but Avicenna, who wants to reject the extreme realism of that view, needs to explain his own view of universals, which presumably would be some form of moderate realism that accords with the Aristotelian position. Importantly, however, Avicenna focuses on the relation between the quiddity in itself or the “nature” and the quiddity *in re* (that is, as being *in* an individual or many individuals at once). Avicenna takes this approach to assessing the problem in V.1 because it is based on the assumption of “natures” or “essences” that he shares with his

⁴⁰⁴ As the opponent states: “If animal qua animal were existent to [i.e., in] this individual, it would either be particular or not particular to it. But if it were particular to it, animal qua animal would not be existent in (*fī*) it or be it [itself], but rather [it would be] some animal (*hayawān mā*) [i.e., a particular animal and not a universal essence].” Paragraph 21.

(platonizing) opponents. That is, the problem for both sides is sorting out how constitutive natures exist and not the very notion of speaking of universals as constitutive natures. As we shall see, Rāzī approaches the question in a very different manner. But let us first see how Avicenna speaks of constitutive quiddities specifically in V.1.

Avicenna's distinction between quiddities without condition and with the condition of nothing is aimed at permitting one to speak of quiddities as not being separate entities – separate that is from those quiddities instantiated *with* other concomitants, specifically quiddities *in re*. This point aims at neutralizing premise (1) of the platonizing argument. As such, the only case in which a quiddity in itself is truly separate is when it is abstracted in the mind. However, Avicenna needs to clarify the status of the quiddity in itself and precisely how it is to be viewed as being a constitutive part of a quiddity *in re*. In paragraph 28, Avicenna provides one of his more direct statements:

T 21

Thus, “animal” taken with its accidents is the natural thing (*al-shay' al-ṭabī'ī*), whereas what is taken in itself (*al-ma'khūdh bi-dhātihi*) is the nature (*al-ṭabī'a*) whose existence is said to be prior to natural existence (*al-wujūd al-ṭabī'ī*) in the way that the simple is prior to the composite, and [what is taken in itself] is that whose existence is specified (*yakhuṣṣ*) as being divine existence (*al-wujūd al-ilāhī*) because the cause of its existence, insofar as it is animal, is said to be the providence (*ināya*) of God, exalted be He. As for its [i.e., “animal”] existing with matter and accidents and [with] this individual,

even if it is by virtue of God's providence, this is due to (*bi-sabab*) the particular nature (*al-ṭabīʿa al-juzʿiyya*). Just as "animal" with respect to existence has aspects (*anḥāʾ*) beyond [just] one, so likewise it has [multiple aspects] in the intellect (*fī al-ʿaql*).

This passage recalls the same points that Avicenna raised earlier in V noted in **T20** (and even in **T19** from the *Madkhal*), though he puts things in much clearer terms. Here, we return, in effect, to the threefold distinction but it takes on a number of complexities. As noted, Avicenna points to the more complicated discussion of the ontological problems involved in his theory of natures or essences as discussed in later chapters of Book V. We will return to some of these problems, particularly as they relate to form and matter, but there are several points that should be noted here. First, the threefold distinction in this passage looks something like this: (i) the nature (*al-ṭabīʿa*; animal taken in itself), which is in some way ontologically prior and constitutive of those composite things *with* natures; (ii) the composite natural thing (*al-shayʾ al-ṭabīʿī*), which is a nature plus superadded properties obtaining *in re*; (iii) the mental form that corresponds to (i) and (ii).⁴⁰⁵ As shown above, Avicenna addresses the major problems raised in V.1 within this framework. Avicenna does not delve into the details of the relation between (i) and (ii) because the basic philosophical problems raised in V.1 do not push the question deeper into the investigation of the ontology of universals. Avicenna's subsequent chapters in V assess more closely the ontological aspects of universals, particularly those that correspond in some way to the parts of definitions. It should also be noted that Avicenna

⁴⁰⁵ Though clear enough, the correspondence of mental forms to (1) and (2) is made clearer in the rest of paragraph 28.

discusses more elaborately the ontological relations of the quiddity in these precise terms in the *Maqūlāt*, especially III.2, where he discusses secondary substances. We will return to aspects of these discussions below.

We return, finally, to Rāzī's discussion in the *Mabāḥith*, specifically the omissions and additions we spoke of earlier. As indicated, Rāzī cites the platonizing argument in V.1, with the full argument for premise (1) followed immediately by the two responses that Avicenna provides. However, Rāzī's summary of Avicenna's paragraphs 26 to 29 is extremely condensed and involves a number of terminological shifts. He states:

T 22

Know that it is true to say that "animal" without condition (*lā bi-sharṭ shayʿ*) exists in external [reality] (*fī al-khārij*). But it is not true to say that "animal" with the condition of nothing (*bi-sharṭ lā shayʿ*) exists in external reality, because with this condition it is abstract (*mujarrad*) and the abstract thing has no existence in external reality. Thus, the existence of "animal" with the condition of abstraction (*bi-sharṭ al-tajarrud*) is mental (*dhihnī*) and, with the condition of [there] occurring external accidents to it, its existence is in external reality. Both aspects (*iʿtibārāyn*) are superadded (*zāʿid*) to the essence (*al-ḥaqīqa*) and quiddity (*al-māhiyya*). But that which is taken in itself (*al-maʿkhūdh bi-dhātihi*) without regard to (*bi qatʿ al-naẓar ʿan*) abstraction and concomitance (*luḥūq*), and which is prior to both aspects in the way the

simple is prior to the composite, is said (*yuqāl lahu*) [to be] the divine thing (*al-amr al-ilāhī*), which is the essence or quiddity.

The most significant part of this chapter, which expresses Rāzī's own views most clearly, is found in the paragraph immediately following this quote, but there are a few remarks I would like to register regarding Rāzī's summary of Avicenna's threefold distinction. First, much of what is stated in Avicenna's corresponding paragraphs is excised, but Rāzī retains and underscores the primary distinctions Avicenna makes regarding the problem of universals: quiddity in itself (*bi-dhātihi*), quiddity without condition, and quiddity with the condition of nothing. However, unlike the preceding parts of Rāzī's summary, which stick quite closely to Avicenna's wording, Rāzī summarizes points in a more independent manner in this passage. There is as a result a subtle but clear shift in the terminology of the discussion. One salient aspect of this shift is his repeated use of *fī al-khārij* ("in external reality") which is counterposed with *fī al-dhihn* ("in the mind").⁴⁰⁶ Avicenna does not use *fī al-khārij* at all in the corresponding paragraphs in V.1 and instead uses the phrase, "*fī al-a'yān*". In fact, Avicenna generally avoids using the phrase *fī al-khārij* for the instantiation of quiddities. One reason this might be is that *fī al-khārij* indicates the independent existence of space (i.e., absolute space) which conflicts with the Aristotelian definition of space.⁴⁰⁷ More importantly, from our above discussion, it is clear that Avicenna divides external existence into existence in individuals and existence (or

⁴⁰⁶ For reasons suggested below, he seems to prefer *fī al-dhihn* to *fī al-ʿaql*.

⁴⁰⁷ Not only in *Metaphysics* V, but in similar places in the *Maqūlāt* and the *Madkhal* as well, Avicenna does not use *fī al-khārij* but *min al-khārij*: *Madkhal*, 15, ln.1, ln. 22, ln. 9; 23, ln.11, ln. 14, 15; 34, ln. 6; *Maqūlāt*, 18, ln. 11; 19, ln. 11, ln. 14; 92, ln. 8, 9,11,17.; 93, ln. 1,16; 94, ln. 14,16,17. Important philosophical points are raised in McGinnis, "A Penetrating Question", 56-69.

reality) that is “prior” to specific instantiations. Avicenna does, however, say that quiddities are *in* the mind or soul.

Interestingly, Rāzī summarizes the entire discussion (indeed the entire chapter) without any reference to “nature” (*tabīʿa*), which as we saw was central to Avicenna’s discussion of the problem of universals. Avicenna’s treatment throughout (especially from paragraph 18 on) refers to the substantive “nature” that is equated with the abstract term, e.g., animality, or a universal term with a qualification like *bi-mā huwa* and its paronym “natural” as a way of distinguishing between quiddities in itself and those existing in individuals (*fī al-ʿayān*). Rāzī not only omits nature but also drops any reference to the abstract universal (e.g., animality) or *qua*-clauses in these passages. He simply refers to the universal as a general term, such as, “horse” or “animal”.

What the above changes suggest, I believe, is that Rāzī agrees with Avicenna’s opposition to the platonizing argument but rejects the ontological commitments alluded to in Avicenna’s reference to natures. Rāzī thus retains the primary points regarding the problem of universals, while sanitizing the rest of the discussion from the ontological overtones. That is, Rāzī agrees with the minimal claims that there are no abstract universals (a point he argues in numerous places, as will be noted shortly) and that universals simply correspond to their instances in the external world (cf., for example, **T7**). Thus, we need only use the general term “human” as a universal, which picks out a mental concept, and maintain its correspondence to external instances without any reference to a “natural human” or “humanity”, i.e., whatever might require a nature. For Rāzī, the primary distinction is between that which obtains in external reality versus that which is in the mind. Thus, when Rāzī refers to the quiddity in itself, he consistently ties

the notion to intentional terms, such as *i^ctibār*, which underscore the mind-dependence of the distinction. Moreover, it should be noted that in the one line that Rāzī devotes to paragraph 28, where Avicenna most expressly sets out his ontological points, Rāzī alludes to his rejection of Avicenna's position. That is, Rāzī's use of the passive voice of the verb *qāla* ("he said"), such as the passive past tense form '*qīla*', usually implies distancing oneself from the stated position. What Rāzī seems to be saying is: "Such natures are allegedly said to possess divine existence."

This might be reading too much into Rāzī's choice of words. And the point is not integral to my overall argument that Rāzī wishes to make programmatic changes here, since there is clearer evidence that he opposes Avicenna on all these points. However, if that evidence stands, as will be shown in the subsequent discussion, I think it suggests that, especially in the *Mabāḥith*, Rāzī can be quite a subtle writer. This is perhaps one reason why his positions in the *Mabāḥith* and other works are sometimes misunderstood by his commentators.

A few additional points need to be made. First, Rāzī does not simply condense and marginalize the ontological elements of Avicenna's discussion in paragraphs 26 to 29. Rāzī completely excises the psychological and epistemological points that Avicenna makes as well, especially in paragraph 28, where Avicenna discusses the different "aspects" of the existence of quiddities in the mind. Similar to what I have argued above with regard to Avicenna's ontological commitments in *Ilāhiyyāt* V, Rāzī's omission could be related to the fact that Rāzī strongly opposes Avicenna's theory of abstraction and mental forms. So just as Rāzī omits nature, he omits the mention of mental forms (sing.: *ṣūra*), which for Avicenna correspond to the natures of natural things. As

discussed in the next chapter, mental representation for Rāzī does not correspond to the natures of things but to their phenomenal properties, so Rāzī opposes the talk of mental forms. All this, it can be noted, is consistent with the epistemic and logical programme that I discussed in Part I.

If we turn to Rāzī's first chapter on quiddities in the *Mulakhkhaṣ*, which corresponds to the chapter under discussion from the *Mabāḥith*, several points emerge. The *Mulakhkhaṣ*, being a compendium, provides a much shorter treatment than the *Mabāḥith*. However, the *Mulakhkhaṣ* focuses on a number of the central points discussed above, including the distinction based on the logical distinction between quiddities without condition and quiddities with the condition of nothing. Importantly, Rāzī raises a problem regarding the formulation of *bi-sharṭ lā shay'*. With the condition of nothing, that is, with the predication of a metathetic negation (i.e., "S is a not-P") he states that it is clear that the quiddity cannot exist in individuals.⁴⁰⁸ But he states,

T23

As for in the mind (*fī al-dhihn*), we do not hold this [position]. Even if we did hold to it, the quiddity in this case would still not be abstract (*mujarrad*) because its being in *that* mind [i.e. a particular mind] is a concomitant (*lawāḥiq*). Indeed its being abstract is a concomitant...by this the error of the widely held position (*al-mashhūra*) that quiddities become abstracted in the intellect (*fī al-ʿaql*) has been exposed.⁴⁰⁹

⁴⁰⁸ He does not provide a reason and states this is obvious. It is clear that the reason as discussed above is because any instantiation is *with* a qualification or some superadded property.

⁴⁰⁹ Rāzī, *Mulakhkhaṣ*, fol. 48b-49a.

Rāzī is strictly construing the metathetic negation, “with the condition of nothing”, strictly so as to exclude all concomitants. The position that he states he does not hold is the one that posits mental forms, which we encountered earlier when surveying Rāzī’s logical system. As discussed in Chapter 6, he argues against mental forms in the *Mabāḥith* as well, though he does not make an explicit connection to “with a condition of nothing” in his chapter on quiddities in the *Mabāḥith* as he does here in the *Mulakhkhaṣ*. This passage in the *Mulakhkhaṣ* indicates why Rāzī wants to exclude Avicenna’s discussion of mental forms, and the attendant psychological distinctions, in Rāzī’s summary in the *Mabāḥith*. The passage in the *Mulakhkhaṣ* also corroborates the terminology of the *Mabāḥith*, particularly in omitting references to “nature” and in opposing *fī al-khārij* and *fī al-dhihn*. It should be noted that he uses *fī al-‘aql*, and not *fī al-dhihn*, specifically when referring to his opponents’ position of abstract forms. In general, Rāzī expresses his views more explicitly in the *Mulakhkhaṣ* than he does in the *Mabāḥith*.

The parts we have thus far assessed of Rāzī’s chapter on quiddity in the *Mabāḥith* generally follow V.1 of Avicenna’s *Ilāhiyyāt*. In the final paragraph, however, Rāzī sharply departs from Avicenna:

T 24

Know that the distinction between these two aspects, which is to take a thing *with the condition of not* (*bi-sharṭ lā*) and take a thing *without condition* (*lā bi-sharṭ*), only becomes apparent (*yaẓhar*) in view of (*bi-*

⁴¹⁰ *ʿitibār*) the concomitants (*lawāzim*) of quiddity. However, this distinction will not become apparent [solely] in view of the quiddity itself (*nafs al-māhiyya*) or in view of its parts, for if you attach a qualification (*qayd*) to the essence (*ḥaqīqa*) or exclude a qualification of it, the essence changes and becomes another essence. Therefore, whatever signifies the essence and its constituents (*muqawwimāt*) always signifies [it] *with the condition of not*. On the other hand, that which signifies the concomitants of essence by a signification of entailment (*dalālat al-iltizām*), then in this case it sometimes signifies *with the condition of not* and at other times *without condition*, and so judgment differs in these two aspects (*ʿitibārayn*) in this context.⁴¹¹

From the perspective of Avicenna's Book V, the passage is puzzling. Perhaps most puzzling is the problem at hand: recognizing the distinction between a quiddity *bi-sharṭ lā* and a quiddity *lā bi-sharṭ*. It is an epistemological point foreign to Avicenna's treatment. That is, Avicenna posits the distinction but the question of its recognition is not one that arises, or would arise, in the context of his analysis. Recall that Avicenna

⁴¹⁰ *Iʿtibār* often expresses the consideration of an aspect of a thing, which implies both mind-dependence as well as some independent reality of the object of thought. This is the case where he discusses, for example, the position of those who say that time is *iʿtibārī*, i.e., its reality is reducible to some other external phenomena (namely motion) but does not itself possess external existence. Time exists in the mind or by judgment in a manner that is reducible to an externally existing thing. Thus, *iʿtibārī* in this sense excludes things fabricated by the mind or imagination (i.e., that which is *wahmī*) or posited by the mind (i.e., that which is *farḍī*). At other times, it simply refers to a distinction in, or an aspect of, a thing. Here the usage seems to emphasize the side of mental activity. See Rāzī, *al-Maṭālib al-ʿĀliya min al-ʿIlm al-Ilāhī*, vol. 5 (Beirut: Dār al-Kitāb al-ʿArabī, 1987), 9-20; *Mabāḥith*, 1, 755-768.

⁴¹¹ *Mabāḥith*, 1, 142. Cf. Avicenna, *Metaphysics*, V.7, 181, where the latter discusses *iltizām* (external entailment) versus *taḍammun* (internal signification, i.e., the implication of a part of a thing that a term refers to). However, the context differs and the discussion presumes Avicenna's earlier discussion of essential definitions, which as shown below, Rāzī rejects.

discusses the question of correspondence between mental forms, which are abstract with the condition of not (*bi-sharṭ lā*), and external instances of quiddities (*lā bi-sharṭ*).⁴¹² A mental form *qua* universal corresponds in virtue of its real definition to its instances, and Avicenna has already suggested that a quiddity *in re*, to which the mental form corresponds with the condition of not (*bi-sharṭ lā*), *constitutes* the individuals as a part. Recall that such a quiddity can be viewed as a quiddity in itself plus concomitants and accidents. As such, the question of signification does not arise; it was clear that “animal” or ‘animality’ referred to an essence as picked out by a real definition. The acquisition or recognition of such essences pertains to the method of definition as discussed in logic.

As the tone of the passage suggests, Rāzī is raising and addressing a problem. His point – that the quiddity in itself and its constituent parts will not make the essence more apparent to you – seems to invoke his analysis of real definitions, as discussed in Chapter 3. But what precisely is the problem that he wants to address? Recall that the distinction between *bi-sharṭ la* and *lā bi-sharṭ* does not make particular logical sense unless Avicenna assumes that the conditions apply to *per se* predications. Let us return to the examples, “S is not P” and “S is a non-P”, and read them with the two conditions but without essential predication. As noted above, “S is not P” would be a denial of all members of the set {S is P₁, S is P₂, S is P₃...}, while “S is non-P” would be a metathetic negation amounting to the assertion that all members of the set {non-P₁, non-P₂, non-

⁴¹² He states, “In the intellect, there is the form of the abstract animal, which is [abstracted] in the manner of abstraction that we have mentioned. An in this respect, it is called an intelligible form. There is also in the mind the form of animal with respect to what corresponds (*muṭābiq*) in the mind according to one specific definition to many concrete instances. As such, the one form would be related in the mind to a plurality. In this respect it is a universal, being an intention in the mind whose relation to whatever animal you take does not differ. In other words, whichever [of these instances you take] whose representation is brought to the imagination in any state—the intellect thereafter abstracting its pure meaning (*mujarrad ma‘nāhu*) from accidents—then this very form is realized for the mind.” *Metaphysics*, V.1, 156 (Marmura’s translation with changes).

$P_3 \dots$ } is predicated of S. But, then, the latter is logically equivalent to denying that every member of $\{P_1, P_2, P_3 \dots\}$ is predicated of S (if one holds to the principle of the excluded middle), which is precisely to say “S is not P”. In other words, no logical distinction can be recognized or maintained between *bi-sharṭ lā* and *lā bi-sharṭ* unless we presume that the distinction applies *only* to *per se* predication. This is precisely Rāzī’s point in **T24** and it is important that he registers this point in his first chapter on the quiddity. Although Rāzī worked in subtle ways in his abridgement of Avicenna’s text in V.1, he wished to assert his own position that, in his philosophical analysis, he does presume *per se* predication and, in turn, the theory of demonstrative knowledge. Moreover, **T24** alludes to his own theory of structured universals as his reference to *lawāzim* and signification indicates. That is, universals are simply those pre-scientific concepts that are picked out or signified by ordinary language terms. Moreover, such terms cannot be spoken of by reference to their constituent parts, but by their *lawāzim* or *āthār*, as Rāzī noted previously in logic.

Let us turn briefly to the nature of the *Mabāḥith*, and address the question of how Rāzī’s analysis there proceeds in a different manner from how it proceeds in the *Mulakhkhaṣ*. As noted, Rāzī voices his own views more clearly in the *Mulakhkhaṣ* than he does in the *Mabāḥith*. One explanation is that the *Mulakhkhaṣ* was written later, when Rāzī had become more assertive and independent.⁴¹³ Before this hypothesis can be verified, the precise chronology of his works needs to be established more accurately. In any case, the *Mulakhkhaṣ*, as far as we know, was not written long after the *Mabāḥith*. A more likely explanation can be found if we consider the nature of each work. That is,

⁴¹³ Shihadeh provides this suggestion. See *Teleological Ethics*, 8.

Rāzī's *Mulakhkhaṣ* was written with a logic section, whereas the *Mabāḥith* was not. As such, we often find that the *Mulakhkhaṣ* directly references the points established in logic. For example, in his chapter on quiddity, as we saw, Rāzī discusses the *structuring property* of universals (*al-hay'a al-ijtimā'iyya*). As far as I can see, in the *Mabāḥith*, Rāzī does not explicitly refer to the structuring property. Indeed, as we noted, the *Mabāḥith* refers the reader to some work on logic that he has written, but he does not, and unlike the *Mulakhkhaṣ* cannot, directly reference concepts established in logic. Indeed, there is no equivalent in the *Mulakhkhaṣ* to the somewhat allusive discussion of *per se* predication in T24 of the *Mabāḥith*, because his more explicit views on the matter are already made in the preceding logic section of the *Mulakhkhaṣ*. As we saw above, it is primarily in the logic section of the *Mulakhkhaṣ* that Rāzī expounds his view of structured universals. The logic in the *Mulakhkhaṣ* allows Rāzī to quickly and directly refer to his foundational positions, whereas in the *Mabāḥith* he needs to work his own views subtly into his analysis of what he sees as the standard view or the view of Avicenna. As noted above, Rāzī focuses much attention on explicating and problematizing received philosophical views. Of course, the *Mabāḥith* is exponentially longer, so Rāzī can afford to be rather subtle there, which is not possible to do in a short work such as the *Mulakhkhaṣ*.

In addition to such considerations, we noted that Rāzī wants to be somewhat allusive in the *Mabāḥith*. He certainly expected an intelligent audience, but he also seems to have wanted the intelligent reader to work out the consequences of his positions. For example, in his chapter on abstract or separate substances (*al-jawāhir al-mujarrada*), he states, “And this section is our discussion and it comprises [a number of] hints (*rumūz*)

and points (*nukat*) [so that] whoever invokes the preceding principles [i.e., that he has established] [will] by these [hints] grasp and obtain the truth that is necessarily entailed by them. But we have left them hidden so that only those worthy of [such knowledge] will obtain [knowledge of] them.”⁴¹⁴ Here, Rāzī is nice enough tell us directly, but it seems to me that a good deal of his analysis in the *Mabāḥith* presumes this methodology. That is, understanding much of what Rāzī means to assert *in propria persona* presumes a systematic understanding of the various positions or hints he lays out in the work. It is clear that entire chapters are simply aimed to explicate the view, say, of the *falāsifa*, as we shall note below. In any case, more systematic analyses of the *Mabāḥith* are required to determine how it proceeds.

Returning to Rāzī’s discussion, it was noted that he condenses Avicenna’s ontological point regarding the “divine existence” of the nature (*tabīʿa*), which is prior to its individual existence just as the simple is prior to the composite. Rāzī did not explicitly voice his objection to the position in II.1 of the *Mabāḥith*. Of course, his denial of *per se* predication might be viewed as part of a general rejection of the views of the *falāsifa*. In any case, later in the chapter Rāzī does indicate his disagreement with the view and what it implies. Before that, it might be noted that in the *Mulakhkhaṣ*, Rāzī notes his disagreement with the view expressed by Avicenna in the *Madkhal* and noted in **T19** above, regarding the existence of the quiddity prior to multiplicity in the higher intellects. Rāzī states,

T25

⁴¹⁴ Rāzī, *Mabāḥith*, 2, 460.

Of that which is prior to multiplicity, they [falsely] believe (*za^camū*) that it is the intelligible form [obtaining in] the separate emanating [things] (*al-mufāraqāt al-fayyāda*). But if the quiddities exist, the common factor that [obtains] between the individuals is that which is with multiplicity. Then a universal abstracted concept (*ma^cnā*) obtains in the mind of the individual, when he observes them [i.e., the individuals] through perceiving them. That is what is [meant by] after multiplicity.⁴¹⁵

Here, Rāzī attempts to map the division of universals into *ante rem*, *in re*, and *post rem* made traditionally by the commentators onto his own view of the common factor (*al-qadr al-mushtarak*).⁴¹⁶ Rāzī distances himself from the position that assigns reality to the quiddity *before* existence. That is, his own view starts when he states, “But if the quiddities exist...”. Recall that Rāzī had formulated his notion of the structured universal as applying in existence, as opposed to Avicenna who attempted to separate properties that apply in existence from those that apply to the quiddity in itself. As we shall see, he will criticize the position of the prior existence of the quiddity from another perspective. Here, it is not clear that **T25** is meant to accurately render Avicenna’s position specifically and Rāzī does not refer to him by name. It should be noted that Rāzī seems to refer here to the process of abstraction. In the next chapter, we will examine how his position on abstraction differs from Avicenna’s.

⁴¹⁵ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 71-72.

⁴¹⁶ See Sorabji, *The Philosophy of the Commentators*, 3, 135.

Returning to the *Mabāḥith*, in the 14th section of Chapter 2, Rāzī discusses the characteristics of the differentia. He lists a number of points usually listed by the Aristotelians. In the ninth point, he states:

T 26

Since it has been noted that the genus is dependent in its existence on the differentia, it is impossible for the differentia to be dependent on [the genus] due to the impossibility of a circular regress. Rather, [the differentia] must be independent of [the genus]. [Since] everything that inheres (*kullu mā kāna ḥāll^{an}*) in a thing is dependent on a substrate (*maḥall*), the differentia that divides the genus, and which is constitutive (*al-muqawwim*) of the species, cannot inhere in it [i.e., the genus]. On this [interpretation], there is no problem in making the rational soul the differentia of “animal”; rather, the problem is making the nutritive power (*quwwat al-numūw*), and its like, the constitutive differentia of body – and the same holds of the corporeal animal soul (*al-naḥs al-ḥayawāniyya al-jismāniyya*) – because these attributes (*ṣifāt*) require substrates which are bodies, and the substrate is prior in existence to the inhering [attribute]. That which is prior in existence to a thing cannot be an effect (*ma^clūl*) of it. We have postponed solutions to this [problem], which we will mention in the chapter on the relation of matter to form (*ta^calluq al-mādda bi-l-ṣūra*). Perhaps the truth is to hold that the object of attribution

(*al-mawṣūf*), regardless of whether it is the cause (*‘illa*) of an attribute of its effect, is the genus and the attribute (*al-ṣifa*) is the differentia. But if we hold that, then the distinction no longer holds (*baṭala al-farq*) between the division of the genus by the differentia and the division of the species by the proprium. We will mention the view that we take (*ikhtiyār*) on this matter in the chapter on the relation of matter to form.⁴¹⁷

Rāzī’s discussion evokes his analysis of genus and differentia in logic, discussed in Part I. In particular, this passage recalls Rāzī’s view of the *madhhab* of Avicenna in **T12** regarding the differentia’s being a cause of the species.⁴¹⁸ Rāzī stated there that in his own *madhhab* the differentia may or may not be the cause. Here, in Book I of the *Mabāḥith*, Rāzī connects the problem to ontological questions raised in Aristotelian metaphysics, and specifically the question of form-matter analysis. Here, form-matter analysis does not simply concern the question of the nature of the corporeal body (aspects of which we noted above), but more broadly the systematic ontology of Aristotelian metaphysics. That is, Rāzī recognizes that the nature of sensible things in “metaphysics”, particularly their genus and differentia as interpreted by Avicenna, correspond in some way to matter and form. Even more, he realizes that important aspects of Aristotelian metaphysics hinge on the view that substantial forms (e.g., *ṣūrat al-numūw*, *al-naḥs al-*

⁴¹⁷ Rāzī, *Mabāḥith*, 1, 161-162.

⁴¹⁸ See McGinnis, “Logic and Science,” 174-178.

hayawāniyya) causally and fundamentally explain natural phenomena.⁴¹⁹ In **T26**, Rāzī distinguishes between those forms that may be viewed as existing independently of a substrate (e.g., the rational soul which, on Avicenna's view, can exist separate from matter) and those that cannot. The latter are forms such as, "the nutritive power" or "the animal soul", which correspond, in these cases, to the parts or matter of concrete sensible entities (though they are construed as forms at a lower level, i.e., prior to obtaining the final substantial form that constitutes an infima species, as will be clarified shortly). Such forms or properties, however, cannot exist apart from bodies. As such, they cannot be the constitutive differentia of some (indeterminate) body, since "body" does not exist without being a particular kind of body, e.g., "animal", "plant", and so on. The details of the problem require an analysis of Avicenna's view of substantial forms. No detailed study of Avicenna's theory of substantial form, or form-matter analysis broadly construed, has been undertaken. Here, I will not attempt to provide a comprehensive analysis. Rather, I will focus on Avicenna's discussion of form and matter as it relates to our previous discussion, particularly in terms of the distinction between *bi-sharṭ lā* and *lā bi-sharṭ*. I will focus on texts that Rāzī was familiar with.

Avicenna discusses the relation of the genus and differentia to matter and form in the *Ilāhiyyāt*, *Demonstration*, and his *Maqūlāt*. In V.3 of the *Ilāhiyyāt*, Avicenna applies the distinction between *bi-sharṭ lā* and *lā bi-sharṭ* to genus. Before discussing V.3, I turn to a number of important distinctions that he makes in the *Maqūlāt* I.3, which corresponds to Aristotle's discussion in *Categories* 2 of the fourfold distinction (i.e., *said-of/not-said-of* versus *present-in/not-present-in*) discussed in the preliminary analysis.

⁴¹⁹ On the causal relation between the human soul and body, see for example: Thérèse-Anne Druart, "The Human Soul's Individuation and its Survival after the Body's Death: Avicenna on the Causal Relation between Body and Soul," *Arabic Sciences and Philosophy*, 10 (2000), 259-273.

Avicenna complicates the fourfold distinction by examining the different ways in which the attribute (*ṣifa*) can be viewed as applying to the subject of attribution (*mawṣūf*) (for *mawṣūf* I will use substrate here). The discussion abstracts somewhat from linguistic predication, which as we saw was Aristotle's approach, and as such considers "attributes" and "substrates" rather than the more basic categories of subject and predicate. Avicenna provides a fivefold distinction along with the following examples:

1. The essence (*dhāt*) of substrate "obtains" (*istaqarra dhātuhu*) as a subsisting item (i.e., is determinate) and then the attribute (*ṣifa*) occurs to the substrate externally (*talḥaquhu khārijat^{an} ʿanhu*) like an accident or *lāzim* (e.g., "Man is white" or "Man is risible").
2. The substrate is determinate but the attribute is a part of the subsistence (*juzʾ min qawāmihi*) of the substrate and not external to it (e.g., "Man is animal").
3. The substrate is not determinate (*lā yakūnu qad istaqarra dhātuhu baʿd*), but the attribute applies to make it determinate (*li-tuqarrira dhātahu*), but is not a part of the substrate (e.g., prime matter and form).
4. The substrate is indeterminate but the attribute that applies is a part constituting its existence (e.g., "Substance" as predicated of "body", which applies to "animal").
5. The substrate is indeterminate and the attribute does not apply to it in virtue of its essence but due to the occurrence of some (other) attribute that determines the substrate (e.g., "absolute body" of which "movable" or "in a place" is predicated).

The central notion that Avicenna introduces into the discussion of predication is the "determinacy" and "indeterminacy" of the subject or substrate, which is how I have

translated his use of the various forms of the radical *q-r-r* (primarily *istaqarra* and *taqarrara*). Avicenna attempts to assess how the substrate's determinacy corresponds to various kinds of attributes. Here, what is presumed is Aristotelian form-matter analysis. Categories 4 and 5 will be particularly important to our discussion. In these cases, Avicenna attempts to assess the nature of an "indeterminate" subject when one predicates certain kinds of attributes of it. Avicenna makes a number of points regarding the five categories above. Most importantly, he states that the only case in which the substrate is *not* a proper subject for an attribute is Category 3, because, in his example, the form is *not* a part of it but still constitutes or causes prime matter. Category 3 is an *external constitutive property* or *cause* rather than, say, an internal constitutive part or external non-constitutive property and so violates the division of properties into internal and external kinds. Though "rational" or "animal", in "Man is rational/animal", are causally connected in constituting "man", they do so only insofar as they are parts of man. It is important to note, however, that, though he excludes Category 3, Avicenna wants to assert that "indeterminate" things or matter can be proper subjects of predication, as in Categories 4 and 5. In other words, even though such substrates are, on the Aristotelian view, indeterminate things (i.e., they require a further form or constitutive cause to be determined), they can constitute proper subjects or substrates. For example, in Category 4, we say the "Body is substance." But body here is not absolute, but rather that which applies to (absolute) animal. That is, it is determinate insofar as it is a part of the definition of animal. But as Avicenna states, there is no absolute body that obtains in concrete existence; rather, concrete bodies have many external and accidental properties. Nevertheless, "substance" is predicated of body (which is a part of the animal) as a part

of body. This, of course, recalls our discussion of the Aristotelian genera lines and hierarchy, e.g., substance-body-living-moving. In each genera line, one can pick out a property superordinate to the genus or species and which is constitutive of the species but is itself indeterminate prior to the entire chain of properties being determined or constituted.⁴²⁰ Such entities are constituent parts of a lower genus and ultimately a species. As such, Avicenna's concern is to assess how the parts of a definition correspond to the objects of definition. However, he does not specifically address the relation of genus and differentia to form and matter.

However, in III.2 of the *Maqūlāt*, where Avicenna discusses primary and secondary substances, several distinctions regarding the ontological nature of substances are raised. However, I shall focus on specific points regarding the differentia and the substantial form. Avicenna states,

T 27

The differentiae can be meant to [apply to] the form (*al-ṣūra*), such as rationality (*nuṭq*). But these are not predicated of Zayd or °Amr, even though they are substances (*jawāhir*). And there is no relation (*muqāyasa*) between them [i.e., differentiae as forms] and individuals or species with regard to universality and specificity, rather [the relation] is [that] of simplicity to complexity, since they are substantial forms (*al-jawāhir al-ṣūriyya*) of them [i.e., individuals and species] insofar as their particulars and their universals have this exact relation. If they are related to composites,

⁴²⁰ Allan Bäck views such properties as being “monadic”. See his “The Ontological Pentagon of Avicenna,” 87-109.

insofar as they are simples, they are prior [to the latter] in terms of the priority of the principle to that which possesses the principle (*qidmat al-mabda' ʿalā dhī al-mabda'*).⁴²¹

The crucial distinction here is between the logical universal, “rational” or *nāṭiq*, and the ontological substance, “rationality” or “*nuṭq*”. He states that *nāṭiq*, which is a paronym of *nuṭq*, is that which possesses *nuṭq* (*shay' dhū nuṭq*). As such, the relation between the logical term “rational” to, say, individuals, is the relation of a universal to its particulars. However, the relation of the substance, *nuṭq*, to the individuals or the species, is the relation of the simple to the composite. This point evokes our discussion above of Avicenna’s ontological points in V.1 (especially in **T20**). Here Avicenna identifies the simple quiddity with the differentia taken as the substantial form. He states moreover that these are “abstract” or “separate” differentiae and are prior in substantiality. He states: “If the abstract differentiae (*al-fuṣūl al-mujarrada*) which are [substantial] forms are related to the natures of the species composed of them, they are prior in substantiality in virtue of precedence (*qidma*), but are not prior in substantiality with regard to perfection (*kamāl*).”⁴²² It is not clear how precisely Avicenna views their abstractness or their priority. It might be suggested that given his points in the *Madkhal* and the *Ilāhiyyāt*, Avicenna sees such abstract substances as universals that obtain in the separate intellects. On this interpretation, they are prior to individuals in the same sense that the mental forms in the mind of a craftsman are prior to the artifacts he creates.⁴²³ Moreover, this

⁴²¹ Avicenna, *Maqūlāt*, 101.

⁴²² Ibid., 102

⁴²³ This does not necessarily imply priority in existence, and Avicenna never suggests that substantial forms are prior in existence.

would also explain how they are simples whereas their concrete instances are composite. In fact, it might be recalled that in the *Madkhal*, Avicenna drew the very same analogy in relation to the quiddity in itself and multiplicity (see **T19**). In any case, the precise interpretation of the substantial form, and its relation to individuals, as was noted, is one of the most debated problems in Aristotelian scholarship. How Avicenna might be attempting to resolve such problems, particularly in the context of the commentarial tradition, requires a more thorough treatment. Although, in Book III, Rāzī will problematize the notion that quiddities in the intellects are instantiated through some emanative process, his arguments here do not draw on those cosmological questions.

Now that we have discussed the relation between the differentia and form, we turn now to Avicenna's discussion in V.3 of the relation between genus and matter. Here Avicenna will clarify his discussion in the *Maqūlāt* I.3 in the context of definitions. He states,

T 28

In the same way, if “animal” is viewed as animal with the condition that it is not in respect of (*bi-sharṭ an lā yakūn fī*) having [nothing] in its animality but corporeality (*jismiyya*), nutritive power (*taghaddⁱⁿ*), and sensation (*ḥiss*), and for the [properties] occurring after [these properties] to be external to [animal], then it is not perhaps too far to say that it is the matter (*mādda*) of “human” or a substrate and its form is the rational soul.

Here, Avicenna applies the *bi-sharṭ lā*, which he applied in V.1 only to the quiddity in itself (and to mental forms), to the matter or substrate of the species that is brought into actuality by the substantial form.⁴²⁴ The substantial form here is the differentia, “rational soul” (or *nutq* as he also refers to it here), taken as the substantive. Significantly, this relation falls under Category 3, above, and so the substantial form or “rational soul” is not predicated of “anima” viewed as the matter made up of corporeality, nutritive power and sensation. The relation then of the various levels of indeterminate properties to the substantial form, is the relation of the corporeal form to prime matter. Hence, the form-matter analysis can be applied at every point, starting from the determinate individual of a species back up the genera/differentiae line until one arrives at the highest genus.

Rāzī understands what underlies the Aristotelian view of the essential properties or attributes of an essence are the causes or forms of a thing. Given this, Rāzī’s point in **T26** is to note that the Aristotelian view requires a precise understanding of the relation that holds between matter and form, since the form-matter analysis of universals will hinge on it. Rāzī had already noted, in the logic of the *Mulakhkhaṣ* (see **T13**), Avicenna’s *madhhab* of form-matter analysis. There Rāzī stated that Avicenna considered the final differentia as the first cause (*al-‘illa al-ūlā*), and the highest genus as the final effect. Without using form-matter language in logic, this nicely captures Avicenna’s position that the differentia is the substantial form of the matter that is constituted by the ordered properties of the genus, from the most proximate genus to the highest.

As discussed above, Rāzī refers us to his discussion of the relation of matter to form, which is found in his chapter on the constituents of the corporeal body or the

⁴²⁴ Here Avicenna equates the logical genus with the genus *bi-lā sharṭ*. Avicenna also provides the example of body, which if taken *bi-sharṭ lā* is the matter of anything that obtains subsequent to it and determines it.

substantiality of bodies (*tajawhur al-ajsām*). In a number of sections of the chapter, Rāzī's discussion proceeds in a manner that accounts more generally for the relation of form to matter, and not just the relation of corporeal form to prime matter. Rāzī's analysis spans many pages and many sections on a number of topics that are closely interrelated, an investigation of which is beyond the scope of this study. A few points, however, can be noted. There is a section (*faṣl* 12) specifically on the relation of prime matter to form. In this chapter, Rāzī broadly assesses the dependency relation between form and matter and not specifically as form and matter relate to body. In this section, Rāzī seems not to be speaking *in propria persona*. Rather, he is attempting to formulate, problematize and resolve the Aristotelian position. Here, Rāzī seems to be forced to interpret the Aristotelian position by incorporating the theory of emanation.⁴²⁵ In any case, it is important that this section follows his discussion in **T15** regarding his fundamental problem with form-matter analysis: that form-matter analysis conflicts with the fundamental epistemological and logical principles that ground his theory of structured universals, specifically in that form-matter analysis posits noumenal properties. Recall that Rāzī emphasized in the *Mabāḥith* the epistemological point that we do not “grasp” or “sense” (*lā nashʿur*) the essence of continuity or the essence of moisture; rather, we know it through its effects or concomitants (*lawāzim*). In the *Mulakhkhaṣ*, Rāzī notes that the properties set out in the Aristotelian definitions of body are “obscure concepts” (*taṣawwurāt ghāmiḍa*), at least in relation to the pre-scientific notion of body. In this, we have, already, Rāzī's response to the problem. At the end of section 8, Rāzī states, “Even if in our view (prime) matter has not been affirmed [by proof], those who affirm it discuss

⁴²⁵ At least, when it specifically applies to prime matter and corporeal form.

its characteristics, so we will also discuss those [characteristics] so that our book will include all of what is said on each topic.”⁴²⁶ Section 11 on the relation of matter and form follows this statement.

However, Rāzī does discuss his own views in section 13, which concerns “affirming the natural forms” (*al-ṣuwar al-ṭabīʿiyya*), by which he means the elemental forms (i.e., fire, air, water, earth). Previously, Rāzī notes that no proof has been offered establishing that the elements are restricted to four. Here, he is interested in examining whether the elements are forms or attributes. He notes in response to an objection that by “form” he means what was stated earlier, as being that which inheres in matter and is the cause of its constitution in the manner he described (this corresponds to Category 3 above in the *Maqūlāt*). Rāzī then states:

T 29

Know that what we have obtained by proof (*dalīl*) is that these accidents (*aʿrāḍ*), such as place, quality and so on, are related to powers existing in the body which are sustained things (*maḥfūẓat al-dhawāt*) that return the bodies to these qualities when there is no coercive force or impediment. As for whether these [latter] things are constitutive forms or accidental properties, this is something that has not been established by demonstration (*burhān*). What is more likely (*al-aqrab*) to me is to not make these things causes of bodies and to not consider them forms, but rather [to consider them as] accidents.⁴²⁷

⁴²⁶ Rāzī, *Mabāḥith*, 2, 53.

⁴²⁷ *Ibid.*, 66.

A full understanding of Rāzī's position here requires an analysis of his discussion of qualities in his section on accidents. However, a few general remarks can be made. First, by rejecting forms and other principles of Aristotelian metaphysics, Rāzī is not forced to reject all explanations of natural phenomena. Importantly, his explanations of phenomena can be probabilistic from an epistemological perspective and contingent from an ontological perspective, since his explanatory model need not presume necessary causal relations. Perhaps his use of *dalīl* here as opposed to *burhān* is meant to indicate the lower epistemic threshold that Rāzī requires. Indeed, although Rāzī's broader analysis cannot be explored here, it might be noted that his method of establishing the nature of such powers is inductive and quantitative, the latter in the sense that the more proofs the stronger the position. As such, Rāzī can, at least in theory, attempt to construct an alternative approach to explaining regular "causal" natural processes, one that does not posit noumenal entities such as forms.

Chapter 6

Rāzī's Theory of Knowledge: Representation, Optics, and Phenomenal Regularity

In this chapter I examine a number of central concepts in Rāzī's theory of knowledge. In the foregoing analysis, we saw that Rāzī objects in logic and elsewhere to the theory of mental or intelligible forms (*al-ṣūra al-ʿaqliyya*). Though he raises a number of direct and indirect objections to the theory, he does not state more precisely how one should interpret intelligible forms. He did indicate in the *Mulakhkhaṣ* that what he has in mind is Avicenna's theory of abstract intelligible forms which are grounded in the latter's psychological theory of abstraction, as discussed previously. Presumably, Rāzī expects his reader to know the Avicennan theory. However, Rāzī provides a nuanced analysis of the Avicennan theory of intelligible forms and abstraction in his *philosophical* discussions. The analysis of his interpretation(s) of, and objections to, the Avicennan theory will be important for us to understand Rāzī's own theory of knowledge.

In the *Mabāḥith* and the *Mulakhkhaṣ*, Rāzī discusses his own theory of knowledge in the first part (*jumla*) of Book II, and specifically in the subsection that treats qualities (*kayfiyyāt*). Given our discussion in Chapter 4 regarding the structure of these philosophical works, Rāzī views knowledge as a phenomenal object of analysis, that is, as falling under the phenomenal accidental category. One might expect the theory of knowledge to be better placed in Book I, which discusses general ontological problems.

Rāzī does, however, refer to his chapter on knowledge in the first chapter of Book I, which treats “mental existence” (*al-wujūd al-dhihnī*). There he simply discusses the distinction between mental and external existence and raises objections to the theory of mental existence. Rāzī provides a number of arguments *for* mental existence and points out that the full verification (*taḥqīq*) of this chapter will be dealt with in his treatment of the intellect (*al-ʿaql*) and the intelligible (*al-maʿqūl*).⁴²⁸

The chapter in question concerns knowledge and its attributes (*aḥkāmihi*), and it is subdivided into three parts: knowledge (*ʿilm*), the knower (*ʿāqil*) and the known (*maʿqūl*). Rāzī begins this enormous chapter by rejecting the Avicennan theory of the “impression” of the form of the object of knowledge in the knower (*intibāʿ sūrat al-maʿlūm fī al-ʿālim*). In the *Mulakhkhaṣ*, Rāzī uses the term “*ḥuṣūl*”, i.e., the obtaining of forms in the mind.⁴²⁹ In the following, I will examine the problem of the impression (*intibāʿ*) of forms from an epistemological as well as psychological perspective. I argue that Rāzī has two sets of problems in mind in rejecting the Aristotelian theory of form-transference or impression. The first set of problems, which I classify broadly as epistemological, relates to the Avicennan theory of mental forms and includes the problems involved in Avicenna’s theory of abstraction and faculty differentiation. I consider the second set of problems to chiefly concern psychology. Rāzī discusses the psychological problems in the second part of Book II, specifically in his chapter on psychology (*ʿilm al-naḥs*). My analysis focuses on Rāzī’s philosophical positions on

⁴²⁸ This is a lengthy section (62 pages of the cited edition). He refers here to “*kitāb al-ʿaql wa-l-maʿqūl*” but there is no such book. He is clearly referring to his chapter on knowledge, which is divided into three parts: *ʿilm*, *ʿālim* and *maʿlūm*, the latter two of which he later refers to as *ʿāqil* and *maʿqūl*. He begins the chapter on knowledge with “we have made clear in the chapter on existence that a quiddity conceived by the intellect (*al-māhiyya al-maʿqūla*) has an existence in the mind. Here we clarify [this point] further.” *Mabāḥith*, 1, 439-501.

⁴²⁹ Rāzī, *Mulakhkhaṣ*, fol. 77b.

optics and sense perception. Rāzī will oppose *inṭibāʿ* in optics, which is the basis of the Aristotelian/Avicennan theory of intromission. I will argue that Rāzī's own views on optics will have wider ramifications in his epistemology. Moreover, I argue that his development of the theory of structured universals was, at least in part, inspired by his views of developments in optics. I will begin by examining his approach to the Avicennan theory of knowledge. I focus on the core issues that motivate Rāzī's rejection of Avicennan epistemology. Rāzī's main objection to the Avicennan theory focuses on how the Avicennan theory seeks to explain our knowledge of external sensible objects.⁴³⁰

Rāzī asserts his own position in his chapter on knowledge, but thus far I have only stated that he opposes the Avicennan theory. His first five chapters focus on opposing various aspects of the Avicennan theory of knowledge, including *inṭibāʿ*, unification of the knower and the object of knowledge (*ittiḥād*), and the theory of the Active Intellect (*al-ʿaql al-faʿāl*). In the sixth section of the chapter, Rāzī discusses the “verification of the true position on knowledge” (*taḥqīq al-qawl al-ḥaqq*). The section, however, is rather disappointing. It is less than a page of the printed edition and provides only a general discussion. His primary point is that knowledge is, or requires, a relational state (*ḥāla idāfiyya*) that obtains between the object of knowledge and the knower. Moreover, the relation is a property or state that obtains in addition to the concept or form in the mind. That is, the mental form cannot itself fully explain knowledge. Here, Rāzī, I believe,

⁴³⁰ Rāzī's opposition to Avicenna's psychology and his development of a systematic alternative is a clear departure from Ghazālī. See, for example, Frank Griffel, “The Introduction of Avicennan Psychology into the Muslim Theological Discourse: The Case of al-Ghazālī (d. 1111),” in *Intellect and Imagination in Medieval Philosophy*, ed. M. C. Pacheco and J. F. Meirinhos (Turnhout: Brepols, 2006), 571–582. This can in part be explained by the fact that Rāzī seeks to advance a philosophical and scientific alternative, as opposed to Ghazālī. Ghazālī provides primarily a critique of *falsafa* and where he does attempt to construct an alternative view, it usually specifically concerns theology or mysticism. See Frank Griffel, *al-Ghazālī's Philosophical Theology* (Oxford: Oxford University Press, 2009); Richard Frank, *al-Ghazālī and the Ashʿarite School* (Durham, NC: Duke University Press, 1992).

marks out a general problem or position and expects his reader to work out the consequences of his theory starting from his views on various problems relating to the theory of knowledge.⁴³¹ Rāzī's aim in stating that knowledge is relational is not to define knowledge. In the *Mulakhkhaṣ*, Rāzī states more clearly that knowledge itself cannot be defined in a manner that accords with his epistemological principles. But Rāzī wants to assert that the relational property applies to, or is explanatorily required, by whatever it is that we call knowledge. In the following, I will examine some aspects of why he might want to do so. My aim is to set out a general view of the fundamental components of his theory of knowledge. Moreover, I argue that Rāzī's departure from the Aristotelian theory of knowledge, and the development of his epistemological programme in logic, was influenced by his interpretation of new scientific theories of perception and optics.

It is quite evident that Rāzī has a number of problems with the theory of knowledge expounded by the *falāsifa* and in particular the views of, or at least those attributed to, Avicenna. Here, we turn to Rāzī's commentary on Avicenna's position in the *Sharḥ al-Ishārāt*, where Rāzī fleshes out a number of points that are not fully apparent in the *Mabāḥith*. In *Sharḥ al-Ishārāt*, Rāzī does not generally assert his own positive philosophical views. That is, he attempts to work within the interpretive assumptions of the Aristotelian and Avicennan system, even when he raises various objections to it. One of the more critical parts in *Sharḥ al-Ishārāt* is Rāzī's commentary on knowledge or perception in the third *Namaṭ*. Importantly, Rāzī recognizes that there are diverging interpretations of Avicenna and often adopts or allows what can be described as a charitable reading. It seems that for this reason Rāzī often refers to the

⁴³¹ As noted above, Rāzī does this in a number of places in the *Mabāḥith*.

prevalent or “standard” view (*al-mashhūr*) when discussing Avicenna’s positions in the *Ishārāt*. Rāzī, however, is quite harsh when he sees what he takes to be basic inconsistencies in Avicenna’s theory.⁴³²

Rāzī’s commentary on *Namaʿ* III is quite long and deals with numerous problems relating to Avicennan epistemology and psychology. Before beginning our analysis, I shall list a few points that summarize some of Rāzī’s central concerns:

1. Knowledge of the universals of sensible entities is not based on the reception of the forms.
2. Forms do not help us explain how concepts identify the essences of things, i.e., how concepts represent (*tamaththul*), or correspond (*muṭābaqa*), to objects.
3. Perception and knowledge do not differ fundamentally according to levels of abstraction. There are problems and inconsistencies with principles of faculty differentiation.
4. There is no strict distinction between a sensible form and an intelligible form.

Avicenna begins the section with a “pointer” stating that “perception (*idrāk*) of a thing is for its essence (*ḥaqīqatuhu*) to be represented (*mutamaththila*) in the perceiver.”⁴³³

In his commentary, Rāzī focuses on the question of *tamaththul* and demands an investigation into the nature of representation as it applies to intelligible forms.⁴³⁴ That is, Rāzī does not consider any of the various interpretations of what, according to the *falāsifa*, constitutes an explanation of representation, from the theory of unification to the

⁴³² See for example *Sharḥ al-Ishārāt*, 2, 228-229.

⁴³³ Rāzī, *Sharḥ al-Ishārāt*, 2, 216.

⁴³⁴ *Ibid.*, 235.

theory of the Active intellect.⁴³⁵ He begins by asking whether what is meant by representation is an identical copy (*mathal*) or a likeness (*mithāl*): if the former, all its external qualities should hold of its instantiation in mental existence, which is impossible.⁴³⁶ If it is merely a likeness, then in which way precisely does it correspond to its quiddity? Rāzī states, for example, that the picture of a man is a likeness of the actual man, but it only resembles a man in shape and color and differs in every other way.⁴³⁷

⁴³⁵ Recent scholarship has shown to what extent Avicenna's psychological epistemology is dependent on principles of abstraction, which provides a corrective to the view that Avicenna's epistemology and psychology is primarily explained by the role of the Active Intellect. The advantage of the recent approach is that it takes the many pages Avicenna devotes to the process of abstraction seriously. Still the recent approaches have to synthesize Avicenna's theory of abstraction with the role that he explicitly assigns to the Active Intellect (the works of McGinnis and Hasse offer two excellent, though somewhat diverging views on how to synthesize the two aspects of Avicenna; see the works cited below). Rāzī seems, in a similar manner, to wrestle with the two aspects of Avicenna's theory, though he generally treats abstraction and the Active Intellect as two self-contained but important components of Avicenna's system. Indeed, Rāzī's position is to take Avicenna on abstraction seriously, and he clearly distinguishes between abstraction and emanation in Avicenna. For example, in *Sharḥ al-Ishārāt*, in the Fourth *Mas'ala* of his commentary, Rāzī states that the discussion of the Active Intellect would be an intrusion on the discussion of the *human* faculties and cognition. The Active Intellect is mentioned because it is the cause of the human soul and the cause of it moving from potentiality to actuality (not to mention the analogy with fire in Avicenna's commentary on the Verse of Light in one of Avicenna's lemmas). Before this, Rāzī comments on Avicenna's theory of abstraction without any reference to emanation and the Active Intellect. At the same time, Rāzī does not neglect positions in the rest of the chapters in the Third or Seventh *Namaṭ*. For example, he discusses Avicenna's reasoning for why there is no material/natural store for intelligibles and that intelligibles are not stored in a body; and whether the cause of knowledge must possess that knowledge (i.e., an actualized intellect, *'aql bi-l-fi'l*), and whether it must be immaterial. That is, Rāzī sees Avicenna as requiring the Active Intellect to explain other aspects of human knowledge of universals, of which the Active Intellect is the immaterial cause. See Dag N. Hasse, "Avicenna on Abstraction", in *Aspects of Avicenna*, ed. R. Wisnovsky (Princeton, NJ: Markus Wiener Publishers, 2001), 39-72; J. McGinnis, "Making Abstraction Less Abstract: The Logical, Psychological, and Metaphysical Dimensions of Avicenna's Theory of Abstraction", *Proceedings of the American Catholic Philosophical Association*, 80 (2007), 169-183; Meryem Sebtı, "Le statut ontologique de l'image dans la doctrine avicennienne de la perception", *Arabic Sciences and Philosophy*, 15 (2005), 109-140; Jules Janssens, "The Notions of *Wāhib al-Ṣuwar* (Giver of Forms) and *Wāhib al-'Aql* (Bestower of Intelligence) in Ibn Sīnā," in *Intellect and Imagination in Medieval Philosophy*, ed. Pacheco and Merinhos (Turnhout: Breplos, 2006), 551-562. See also points raised in M. Marmura, "Some Questions regarding Avicenna's Theory of the Temporal Origination of the Human Rational Soul," *Arabic Sciences and Philosophy*, 18 (2008), 121-138.

⁴³⁶ Then it would not be a copy but a likeness. Moreover, Rāzī views Avicenna as rejecting the notion that existence is homonymous, at least with respect to mental versus external existence. See *Mabāḥith*, II, 386-7. Note in his discussion of knowledge in Book II of the *Mabāḥith*, in the First *Faṣl*, where he discusses the position of mental forms, Rāzī raises this same puzzle and refers to the section on *'ilm al-naḥs* in the second volume discussed below.

⁴³⁷ Rāzī, *Sharḥ al-Ishārāt*, II, 235. See also *Mabāḥith*, II, 386. Rāzī argues that Avicenna's position is problematic because he holds to a requirement of (representative) mental forms but rejects unification (*ittiḥād*) between the knower and the object of knowledge; he argues this is inconsistent. *Sharḥ al-Ishārāt*, 2, 228.

However, before he begins his actual commentary on Avicenna's lemma, Rāzī provides a lengthy preliminary discussion of a number of general points. First, following Avicenna, he discusses the distinction between knowledge of objects that are not externally existent and those that are externally existent.⁴³⁸ With regard to those that are externally existent, Rāzī states that one cannot simply posit intelligible forms to explain the knowledge of the latter as one posits them for, say, mathematical objects. Crucially, the reason he gives for this is a possible alternative theory regarding sense perception. Rāzī focuses here on the general Aristotelian principle that the sense faculty becomes *like* the object of knowledge. He states that knowledge of extra-mental sensible objects requires obtaining (*huṣūl*) knowledge of those things through the senses. But this does not necessarily imply that we receive their forms, because, Rāzī states, "It is possible to say that those [instances] of perception (*al-idrākāt*) consist in the connection or relation (*ta'alluq*) of the sense faculties to the [objects]. So sight is the relational state [*hāla idāfiyya*] that obtains between the faculty of sight and the observed thing in external [reality] *without the form of the observed thing being impressed (tanṭabiʿ) upon the faculty of sight.*"⁴³⁹ Rāzī goes on to say, "Know that some people have denied that obtaining perception or apperception (*shuʿūr*) is dependent on the quiddity of the object of perception (*māhiyyat al-mudrak*) obtaining in the perceiver."⁴⁴⁰ Rāzī thus seems to be hinting at some alternative theory or theories of perception that are available. Indeed he states that these "people" have provided general proofs for these positions as well as specific ones for each faculty. The general proof states that to attribute (*ittiṣāf*) X to Y is

⁴³⁸ Note here that the same terminological pattern we found in the *Mabāḥith*, i.e., that Avicenna uses *fī al-aʿyān (al-khārijīyya)* and Rāzī *fī al-khārij*, can be found in this section.

⁴³⁹ Rāzī, *Sharḥ al-Ishārāt*, II, 218.

⁴⁴⁰ Ibid., 219.

to say no more than that X obtains as an attribute (*ṣifa*) of Y. Thus, the argument suggests that if we obtain the intelligible form of a quiddity, say heat, we will possess the attribute and thus be hot. This, of course, might be viewed as a rather unfair representation of the Aristotelian view.⁴⁴¹ As such, Rāzī provides three objections which state why the *falāsifa* do not need to commit to such consequences.⁴⁴² First, he states that the quiddity of the thing is simply a representative likeness (*mithāl*) of it and thus does not have all its properties. Second, fire, for example, is not that which burns, but that which burns if it obtains in *external* reality. Third, by knowing a thing's *quiddity*, we simply mean that we know the thing or have knowledge of it.

The second objection is important for our discussion. But it should be noted that in response to the first, Rāzī states that the distinction between a representative likeness and the quiddity or form of a thing needs clarification. Rāzī will discuss this question in further detail later in his commentary on Avicenna's pointer regarding perception mentioned above. To the second objection, Rāzī provides two responses. The first argues that the response only pushes the question back one order. That is, drawing on Avicenna's theory of *lawāzim*, Rāzī states that if "burning" is the quiddity of the concomitant that necessarily applies to fire in external reality, then we *know* that the quiddity of 'burning' is the property that immediately follows from fire's external existence, in which case the quiddity of 'burning' obtains in the mind and thus will be burning. On this interpretation, the *falāsifa* do not budge from the position that forms are different from the actual essence of external sensible things, i.e., they are simply some

⁴⁴¹ Though, of course, it hits on a core principle that has troubled Aristotle's commentators, which states that the faculty of perception becomes *like* the object it perceives. See Sarah Broadie, "Aristotle's Perceptual Realism," *Southern Journal of Philosophy*, 31 (1993), 137-159.

⁴⁴² See the points made by Yahyā ibn ʿAdī in Menn and Wisnovsky, "Yahyā ibn ʿAdī's *Essay on the Four Scientific Questions*".

kind of representation of them. Second, Rāzī states that one can only hold to this version of the *falāsifa*'s position if one holds that mental existence is fundamentally different from external existence, but, he states, the *falāsifa* do not hold the view that they are fundamentally different.

Rāzī does not want to explain mental forms as abstract objects if it means in any way that they are separate or immaterial, which brings us to aspects of his psychological views. In his chapter on psychology in the *Mabāḥith*, Rāzī examines the proofs for the separate or immaterial nature of the human soul. Rāzī sets out the various arguments for the abstractness of the soul, particularly drawing on Avicenna's arguments in the psychology of the *Shifā'*.⁴⁴³ Still, rigorously following his epistemic principles, Rāzī concludes there that "these are some proofs we have found for affirming the separateness (*tajarrud*) of the soul and none of them has convinced us due to the puzzles (*shukūk*) that have been mentioned. So whoever can resolve them, let him provide a proof for them."⁴⁴⁴ Here, Rāzī's position is quite fascinating. He formulates the minimal claims that we are entitled to make about soul, which, on Rāzī's account, is simply the consciousness of our identity (*al-shu'ūr bi-l-huwiyya*). This consciousness however does not establish immateriality or materiality. Indeed, Rāzī sees problems with the *mutakallimūn*'s materialist reduction of the soul to parts or composites and the Galenists' view of the soul as a vaporous entity or a "subtle body" (i.e., *pneuma*). I will not discuss Avicenna's points on this further, since this requires a deeper study. Rāzī indicates that a proper

⁴⁴³ For Avicenna's arguments, see Deborah Black, "Avicenna on Self-Awareness and Knowing that One Knows," *Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and Their Interactions*, ed. S. Rahman, T. Street, and H. Tahiri (Dordrecht: Springer, 2008), 55-73; cf. Thérèse-Anne Druart, "The Soul and Body Problem: Avicenna and Descartes," in *Arabic Philosophy and the West*, ed. Thérèse-Anne Druart (Washington, DC: Center for Contemporary Arab Studies, Georgetown University, 1988), 27-49; Michael E. Marmura, "Avicenna's 'Flying Man' in Context," *The Monist*, 69 (1986), 383-395.

⁴⁴⁴ Rāzī, *Mabāḥith*, II, 387.

understanding of his positions and objections on this topic requires a comprehensive understanding of Rāzī's theory of knowledge.⁴⁴⁵ But this point adds another dimension to why Rāzī wants to resist the theory of mental forms. As we noted above, Avicenna, in the *Ilāhiyyāt*, maintains that mental forms are individual, since they apply to individual souls that inhabit individual bodies; but universal knowledge is fully abstract of material accidents. Rāzī, in accordance with his epistemic principles, wants to efface any fundamental distinction between universal knowledge and sensible or particular knowledge in his own epistemology and psychology.

Rāzī's position on the immateriality of the soul is a fundamental aspect of his own rejection of the Avicennan theory of abstraction and faculty differentiation. In the *Mabāḥith*, he states, "These are the levels of abstraction that Avicenna has elucidated for [each of] the faculties. But, according to the position (*madhhab*) that we have adopted, they are different kinds of perception that obtain in the self."⁴⁴⁶ Rāzī does, however, provide an extensive discussion of internal problems with the Avicennan theory, particularly, with the view that abstraction involves faculty differentiation in such a way that distinguishes between sensible knowledge and universal or intelligible knowledge – a concern which, as discussed, is rooted in some of Rāzī's central epistemic concerns. He discusses these problems in the psychology sections of the *Mabāḥith*, the *Mulakhkhaṣ*, and *Sharḥ al-Ishārāt*, which I will not examine here since I will be focusing on his own theory and not his interpretation of *falsafa* views. However, the "specific" problems raised by the "people" Rāzī refers to concern the specific senses, and also address some

⁴⁴⁵ Ibid., 382.

⁴⁴⁶ *Mabāḥith*, II, p. 428.

basic problems regarding the status of his differentiated faculties, particularly the imagination (*takhayyul*). I shall focus on his discussion of the sense of sight (*al-ibṣār*).

Rāzī states that a number of proofs show that sight is not dependent on the reception of the forms of observed objects. Here, he focuses particularly on refuting the mirror analogy. He draws on the positions of the discerning natural scientists (*al-muḥaqqiqūn min al-ṭabīʿiyyīn*) to argue against the analogy. His points here are not particularly illuminating in that they only provide arguments against the Aristotelian theory. That is, they do not, as far as I can tell, reveal much about Rāzī's own approach to optics, apart from the fact that he himself does not rely on the theory of form-reception. However, in the course of his analysis, Rāzī mentions a revealing point regarding the optical theory of his opponents. That is, he states that the form, or rather likeness (*shabah*; pl. *ashbāh*), of a thing that enters each eye must unite in the front ventricle of the brain at the point where the nerve systems meet, *multaqā al-ʿaṣbatayn*, after being transmitted through the separate optic nerves behind each eye. Otherwise, we would always see two likenesses for each observed thing. *Shabah*, which was translated into Latin as *simulacrum*, means a likeness or image of the object, which is how Avicenna defines it. What Rāzī states reproduces Avicenna's position in the *De Anima* of the *Shifāʾ*, where Avicenna states, in III.8, that "the first thing that the simulacrum (*shabah*) of the seen thing is impressed (*yanṭabiʿ*) on is the crystalline [of the two eyes] but sight does not occur in reality with that, otherwise one thing would be seen as two things, since there are two simulacra in the two crystallines."⁴⁴⁷ Avicenna goes on to say that the two simulacra unite where the optic nerves meet (*multaqāhumā*). Rāzī is well aware that this

⁴⁴⁷ Avicenna, *De Anima*, 151.

is Avicenna's position. Indeed, just before Rāzī ends his preliminary discussion, he quotes the words of Avicenna that I have cited, almost verbatim, from the *De Anima*.⁴⁴⁸ In all this, Rāzī knows very well that Avicenna holds that sensible forms are *likenesses* that are impressed on the sense faculty and are not simply the quiddities of things.⁴⁴⁹ Avicenna states in the preceding chapter of the *De Anima*: "We hold that the eye receives in itself a form (*ṣūra*) that is similar (*mushākila*) to the form (of a thing) in which that form occurs, and is not its very form."⁴⁵⁰ That is, Avicenna argues against the notion that the sense faculty actively separates or abstracts form from external objects, a position he states no one held. As indicated by his consistent use of *intibāʿ*, Rāzī knows that on the Aristotelian view the sense faculty is a passive recipient of forms. Avicenna uses the term *infīʿāl* to indicate that the sense organ or faculty is not an active agent. Why, then, does Rāzī raise all these questions, particularly regarding forms and representation, in his commentary on Avicenna? I believe it is to underscore the fundamental point of divergence between his theory of knowledge and sense perception and Avicenna's, even given the significant shifts that Avicenna makes to the Aristotelian theory.

Immediately following his discussion of sight and the mirror analogy, Rāzī returns to a point he set out earlier, namely, whether perception is simply the reception of forms of objects or not. Rāzī states that Avicenna is not always clear on the matter but that the best interpretation is that, above and beyond the reception of a form, perception requires the positing of a "relational state". The question revolves around problems with accounting for change in the visual perception of an object which dogged the Aristotelian

⁴⁴⁸ Rāzī suggests that it is from the *Shifāʾ*, see Rāzī, *Sharḥ al-Ishārāt*, 2, 233.

⁴⁴⁹ McGinnis has provided a comprehensive analysis of how Avicenna's theory begins with the likeness and ends with the abstracted intelligible form; see McGinnis, "Making Abstraction Less Abstract".

⁴⁵⁰ Avicenna, *De Anima*, 141.

intromissionist theory. For example, if our sight of an object involves the reception of the object's quiddity, why does sight of the *same* object change depending on external conditions? What about erroneous perception? These and other objections were problems that the Aristotelian intromissionists in optics had to deal with. As Hasse has noted, Avicenna early on in his career held the Aristotelian line that light is simply the actualization of the translucent medium insofar as it is translucent. That is, light does not exist, in the Aristotelian view, separate from the medium. Later on, in the *De Anima* and elsewhere, Avicenna takes a different stance. Light now is the quality of luminous bodies, which is transmitted to non-luminous bodies. By reformulating light in this way, Avicenna can better address objections to the problems arising from the form-reception theory.⁴⁵¹ For example, in III.7, Avicenna states that the nature of simulacra is itself dependent on the nature or brightness of the light. Avicenna still wants to maintain the Aristotelian theory in some way by positing the idea that the simulacrum is conveyed to the common senses and onward to the higher faculties (i.e., those of imagination, estimation and intellection), until finally the simulacrum is fully abstracted of accidental material properties and grasped as an intelligible form, when the true intelligible form is transmitted from, or actualized by means of, the Active Intellect.⁴⁵²

⁴⁵¹ D. N. Hasse suggests that Avicenna may have been influenced by Bīrūnī, with whom he had a correspondence on the problem of the Aristotelian definition of light. Avicenna's later theory is closer to Bīrūnī's position. See *Avicenna's De Anima in the Latin West: The Formation of a Peripatetic Philosophy of the Soul, 1160-1300* (London: Turin, 2000), 108-119.

⁴⁵² McGinnis has argued that what is transmitted from the Active Intellect is not the abstract forms themselves but accidental properties or, more specifically "intelligible accidents", such as universality. See McGinnis, "Making Abstraction Less Abstract", 173-174. This approach resolves a number of tensions between the role of abstraction and the role of the Active Intellect in Avicenna's system, and makes sense of why Avicenna takes abstraction so seriously. One question this raises, however, is whether intelligible accidents are the kinds of things or quiddities that, on Avicenna's view, *can* exist in the celestial intellects. Above, in the *Letter on the Soul*, it was noted that unreal or imagined forms do not exist in the Active Intellect. This seemed to imply that what does really exist are the true forms of natural things. It seems these further tensions require resolution.

Rāzī wants to underscore two points. One is that in acknowledging that form-reception has to take external conditions into consideration, specifically the “relational state” between the sense faculty and object of sight, he believes Avicenna has already rendered form-impression otiose. That is, we no longer need to posit form-impression in order to explain sense perception. This point I shall return to shortly, as Rāzī expands on it elsewhere. The second point is that Avicenna’s position is internally problematic. After stating that the positions of Avicenna conflict (*muḍtarib*), Rāzī suggests the charitable reading and states that Avicenna does try to account for relational states in his theory of sense perception, despite Avicenna’s neglect to examine the role of relational states in various texts. Rāzī then discusses the views of Avicenna’s “predecessors” (*al-falāsifa al-mutaqaddimūn*), particularly with regard to why they held that the quiddity of the object of knowledge obtains in the knower. Rāzī states that they did not hold that position without also holding that the object of knowledge becomes united (*yattaḥidu*) with the faculties of the knower. Rāzī believes that whoever holds to the form-reception theory must commit to the faculties’ becoming like or identical to the quiddity of the object of knowledge. Otherwise the quidditative theory cannot distinguish, say, the form of blackness that inheres in an external substrate, and the form of blackness that inheres in the mind. If they do distinguish the two, without holding to identification, this would not in fact be based on quiddities but likenesses. Rāzī also notes that on this view, one needs to also explain why percipient beings that receive forms *perceive* the form and why inanimate objects do not; rather, forms simply inhere in them. Significantly, this was an important problem that troubled many Aristotelian commentators.⁴⁵³ It seems that Rāzī

⁴⁵³ It is curious that Avicenna seems to be less troubled by this question than Rāzī. I have not found where

thinks that unification (or identification), which differs from the property of inherence, is meant to provide the required explanation.⁴⁵⁴ Rāzī notes that Avicenna affirmed unification in his earlier work *al-Mabda' wa-l-Ma'ād*, but vehemently rejected it in his later works, especially the *Ishārāt*. Rāzī states, “He then retracted his position on unification (*ittiḥād*) in this book and considers it a fabrication (*khurāfāt*). But combining the two positions is problematic (*mushkil*). Indeed, whoever holds that knowledge is the impression itself [of the form] must hold to unification, so that he can distinguish between the inherence of blackness in the soul and its inherence in a body. And whoever rejects unification must affirm that knowledge is something above and beyond (*amr warā'*) the impression [of a form].”⁴⁵⁵ As mentioned, Rāzī subsequently notes that later on Avicenna does indeed affirm that forms are simulacra. In this light, it should be noted that Rāzī simply intends to underscore certain tensions in Avicenna and the Aristotelian theory in the preliminary discussion.

Rāzī's discussion reduces the dispute between him and Avicenna about knowledge to one main point of contention: how precisely to interpret Avicenna's view of “representation”, which in the case of sight was the *shabaḥ* or simulacrum. When Rāzī finally arrives at Avicenna's first line quoted above which states that the quiddity is “represented” (*mutamaththila*), Rāzī states that an investigation into representation is required (*tastada'ī baḥṭh^{an} 'an al-tamaththul*). Rāzī states here that Avicenna has not provided a full answer to the question of the relation between the essence of a thing and

Avicenna tries to explain this. Perhaps, his notion of simulacra makes it clear that images are not forms, in which case Avicenna would still have to deal with explaining the Aristotelian theory of perception for all the other senses. See, for example, Aquinas' attempt at dealing with the problem in Robert Pasnau, *Theories of Cognition in the Later Middle Ages* (Cambridge: Cambridge University Press, 1997), 50-60.

⁴⁵⁴ It is notable that Broadie argues that Aristotle should be interpreted with this stronger thesis of identification, given Aristotle's commitments; see “Aristotle's Perceptual Realism”.

⁴⁵⁵ Rāzī, *Sharḥ al-Ishārāt*, 2, 229.

its likeness. I will not examine how Avicenna might respond to Rāzī's objections here. Avicenna's view is quite complex and he would have had the resources within his system to at least provide a rejoinder. However, it is not clear how Avicenna would have rendered it consistent with his more general Aristotelian commitments. I turn now to Rāzī's own view, specifically why he thinks the notion of form-impression (*inṭibā'*) is problematic and otiose.

It should be noted first that Rāzī, in *Sharḥ al-Ishārāt*, states clearly that his own preference is to view vision as simply the relational state that obtains *without simulacra being impressed on the eye*.⁴⁵⁶ However, given that Avicenna's theory relies on simulacra, Rāzī does not explain what an alternative theory of vision would look like, if we were to omit simulacra. Rāzī offers more on this problem in his other works.

In the *Mabāḥith*, Rāzī begins by distinguishing between three basic theories of vision. The first two are extramissionist theories (*aṣḥāb al-shu'ā'*) that can be broadly labeled as the "Euclidean" and "Galenic" views.⁴⁵⁷ Rāzī, like Avicenna in the *De Anima*, refutes the extramissionist theory. The Euclideans held that the eye emits rays made of corporeal material that forms a cone covering the area of vision. The Galenists held that the rays produced by the eye transforms the air outside of the eye so that it becomes an instrument by which the eye can see. The third view is the one formulated in precisely the same way that Avicenna formulates the intromissionist theory in the *De Anima*, i.e., that simulacra of objects are impressed on the crystalline of the eye by means of the transparent medium of air (*inṭibā' aṣḥbāḥ al-mar'īyyāt bi-tawaṣṣuṭ al-hawā' al-mushaff*

⁴⁵⁶ He states, "Hence, vision is an expression for (*'ibāratan 'an*) the relational state that obtains between the faculty of vision and the existent thing in external reality *without the forms of the object of sight being impressed on the faculty of vision or its substrate (maḥallihā)* [i.e., the crystalline]." *Sharḥ al-Ishārāt*, II, 218.

⁴⁵⁷ Lindberg, *Theories of Vision*, 44.

fī al-ruṭūba al-jalidiyya). Rāzī identifies the latter simply as the theory of impression (*inṭibāʿ*). In the *De Anima*, Avicenna proceeds by refuting the two extramissionist options and then affirming the third, i.e., the intromissionist option. In the *Mabāḥith*, Rāzī states, a number of times, that the extramissionist theory and the intromissionist theory do not exhaust all possibilities. More precisely, Rāzī states that extramission (*al-qawl bi-l-shuʿāʿ*) and the theory of impression (*al-inṭibāʿ*) do not comprise two contradictory positions such that the falsity of one entails the truth of the other. Rāzī here states that it is possible (*muḥtamal*) that sight is an apperception (*shuʿūr*) that is a relational state (*ḥāla idāfiyya*) which obtains, whenever all the necessary conditions of vision are met, without the eye emitting rays or forms being impressed on the eye.⁴⁵⁸ Again, Rāzī completes his analysis and critique of impression (*inṭibāʿ*) without expanding on what alternative theory might be proposed. He notes, towards the end, that most of those who hold to the theory of impression hold that vision is simply the impression of the simulacrum in the crystalline. But some maintain (*zaʿama*) that vision is a relational state that obtains with the condition (*mashrūṭa*) that the impressed form obtain (i.e., the form is a necessary but not sufficient condition), or they view the relational state as obtaining as an effect (*maʿlūla*) of the impressed form.⁴⁵⁹ Rāzī clearly prefers the intromission theory of vision but rejects the notion of impression and simulacra. It should be noted that Rāzī calls those who hold to the theory of impression the “simulacrists” (*aṣḥāb al-ashbāḥ*). Rāzī’s discussion here parallels his points in *Sharḥ al-Ishārāt*, specifically in that the proponents of intromission can be viewed as holding three distinct positions: (1) vision is simply the impression of simulacra or forms; (2) vision requires the impression of simulacra as well

⁴⁵⁸ Rāzī, *Mabāḥith*, II, 313.

⁴⁵⁹ *Ibid.*, 319.

as a relational state; (3) vision is simply a relational state. Importantly, in the *Mabāḥith*, Rāzī clarifies that he cannot disprove the possibility that simulacra are required in addition to the relational state; only that simulacra are not explanatorily required for a theory of vision.⁴⁶⁰ It should be noted here that Rāzī proceeds, once again, by carefully adhering to his epistemological principles: Rāzī does not deny the noumenal possibility that forms of some kind may be required in perception, but he does deny that forms are required at the epistemological and explanatory level. In any case, this brings us back to our initial problem of how to precisely construe intromission as an optical theory that only posits a relational state.

In a subsequent chapter, Rāzī discusses the problem of seeing two things when one crosses one's eyes. This is an objection raised against the *aṣḥāb al-ashbāḥ*, since they hold that the simulacra impressed on the crystalline unite in a higher faculty, so crossing one's eyes should not interfere with that process. Rāzī mentions a few potential responses that the *aṣḥāb al-ashbāḥ* might offer but Rāzī believes that the problem requires a definitive resolution if one affirms simulacra.

In the *Mabāḥith*, Rāzī does not have an independent section on the kinds or categories of sight. However, he does have a chapter on the “common sensibles” (*al-maḥsūsāt al-mushtaraka*). Rāzī's list of common sensibles reproduces in order and number that set out by Avicenna towards the end of III.8 of the *De Anima*: size (*al-maqādīr*), number (*al-a^cdād*), position (*al-awḍā^c*), motion (*al-ḥarakāt*), rest (*al-sakanāt*), shape (*al-ashkāl*), proximity (*qurb*), distance (*bu^cd*), and contiguity (*mumāssa*).⁴⁶¹ Rāzī

⁴⁶⁰ Ibid., 320.

⁴⁶¹ The only difference is that he switches the order of “number” (*al-a^cdād*) and “position” (*al-awḍā^c*), namely from second and third respectively in Avicenna, to third and second respectively. See Avicenna, *De Anima*, 159. Rāzī, *Mabāḥith*, 2, 330. On the common sensibles, see Aristotle, *De Anima*, 2.6.418a20-25;

summarizes the points that Avicenna raises regarding the real and accidental objects of perception. The common sensibles are not accidental, but they follow upon (*muqārīn*) the real sensibles. With regard to sight, Rāzī notes Avicenna's point that the primary and real object of sight is color, and that the common sensibles are perceived by means (*bi-tawaṣṣuṭ*) of color. Rāzī goes on to consider the other senses, as does Avicenna.

However, Rāzī returns to the question of sight after his summary of Avicenna and states, "In general terms (*bi-l-jumla*), the perception of sight of these things [i.e., sensibles] is stronger, even if its perception of them in most things also needs the assistance of a kind of inference (*bi-isti'ānatⁱⁿ minhu bi-ḍarbⁱⁿ min al-qiyās*)."⁴⁶² Avicenna does not mention *qiyās* or inference with regard to sight in the *De Anima*, or in any of his other major works. It is therefore not clear what Rāzī means here, and the *Mabāḥith* does not say any more on the matter.

In the *Mulakhkhaṣ*, Rāzī has an independent section on the objects of vision (*al-mubṣarāt*). He begins the section by providing the following list: light (*al-daw'*), color (*al-lawṇ*), surfaces (*al-aṭrāf*), size (*al-ḥajm*), distance (*al-bu'd*), position (*al-waḍ'*), shape (*al-shakl*), separation (*al-tafarruq*), continuity (*al-ittiṣāl*), number (*al-ʿadad*), motion (*al-ḥaraka*), rest (*al-sukūn*), smoothness (*al-malāsa*), roughness (*al-khushūna*), the transparent/translucent (*al-shafīf*), opacity/density (*al-kathāfa*), shade (*al-ẓill*), beauty (*al-ḥusn*), ugliness (*al-qubḥ*), similarity (*al-tashābuh*), and difference (*al-ikhtilāf*). Rāzī states after this:

3.1.425a14-b4. Avicenna and Rāzī probably use the plural forms so as to not confuse any of the sensibles with the categories and subdivisions of the categories. I have translated them in the singular form.

⁴⁶² Ibid., 332.

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There are other things that fall under these, such as order, which falls under position; writing and all imprints (*al-nuqūsh*), which fall under order and shape; straightness (*al-istiḳāma*), curvature (*al-inḥināʾ*), convexity (*al-taḥdīd*), and concavity (*al-taqʿīr*), which fall under shape; multitude (*al-kathra*) and sparsity (*al-qilla*), which fall under number; equality (*al-tasāwī*) and inequality (*al-tafāḍul*), which fall under similarity (*al-tashābuh*); laughter (*al-ḍaḥk*) and crying (*al-bukāʾ*), which fall under shape and motion; joyfulness (*al-bishr*), cheerfulness (*al-ṭalāqa*), graveness (*ʿubūsa*), and scowling (*al-taqīb*), which fall under shape and rest; moisture (*al-ruṭūba*) and dryness (*yabūsa*), because sight perceives moisture in the flowing (*saylān*) [of a body] and dryness [is perceived] due to the firmness (*a-tamāsuk*) [of the body].⁴⁶³

Avicenna does not provide a list like this of primary and secondary objects of sight in the *De Anima* or his other major works. However, in II.3 of the *Optics* of Ibn al-Haytham, the latter provides a list of 22 primary divisions of objects of sight, and lists them with the same terms (i.e., exact phrasing) and order of both the primary and secondary categories, with a few differences.⁴⁶⁴ I will note only the differences. First, in the primary list, after *ḍawʾ* and *lawn* Rāzī adds *aṭrāf* and *ḥajm* and then lists *buʿd* and *wadʿ*. After *ḍawʾ* and *lawn*, Ibn al-Haytham lists *buʿd* and *wadʿ* immediately and then lists *tajashshum* (extension or corporeality), *shakl*, and *ʿiẓam* (size). Rāzī does not include *tajashshum* or

⁴⁶³ Rāzī, *Mulakhkhaṣ*, fol. 154b.

⁴⁶⁴ Ibn al-Haytham, *Kitāb al-Manāẓir*, Books I-III, ed. A. I. Sabra (Kuwait: The National Council for Culture, Arts, and Letters), 230 (hereon referred to as *Optics*).

‘izām. The fourteen sensibles that follow are precisely those listed by Ibn al-Haytham in the same word form, with two minor exceptions. *Khushūna* precedes *malāsa* in Ibn al-Haytham’s list and also Ibn al-Haytham adds *zulma* (darkness) after *ḍill*, which Rāzī does not list. Ibn al-Haytham, like Rāzī, immediately moves on to discuss the secondary qualities, and like Rāzī states that these “fall under” those in the first list. Rāzī’s list in **T20** is the same in wording and order as that provided by Ibn al-Haytham, with even smaller differences. For example, Ibn al-Haytham adds that *ḍahḳ* and so on are the shaping (*tashakkul*) of the form of the face (*ṣūrat al-wajh*), and thus fall under *shakl*. There are several ways to explain some of the divergences. For example, Rāzī might not list *tajassum* because Ibn al-Haytham explains it as three-dimensional extension, which is what Rāzī seems to have in mind with *aṭrāf*, which he later states consists in point, line, plane, and *ḥajm*, which is magnitude or size. In any case, we have better evidence that Rāzī is getting the list from Ibn al-Haytham’s *Optics*. In his chapter on optics (*‘ilm al-manāẓir*) of his work *Jāmi‘ al-‘Ulūm*, which is a summary in Persian of the major principles and problems of forty sciences, Rāzī provides two lists (*do qism*) in the fourth section (*aṣl chhāram*). Rāzī provides, this time, the first list of Ibn al-Haytham, the only difference being that where Ibn al-Haytham lists *tajassum* Rāzī lists *miqdār*. Everything else is exactly the same. Although several terms are in Persian naturally, almost half preserve the Arabic words. Rāzī however abridges the second list more than he does in the *Mulakhkhaṣ*. But what is most significant is that Rāzī states explicitly, “These are the kinds of objects of sight as Ibn al-Haytham lists them in the *Optics (Manāẓir)*”.⁴⁶⁵

⁴⁶⁵ Rāzī, *Jāmi‘ al-‘Ulūm*, ed. S. ‘Alī Āl Dāwūd (Tehran: 2003-2004), 410.

This raises a major question regarding the history of Ibn al-Haytham's *Optics*. The established view of the *Optics* is that its manuscript did not arrive in the Islamic East, where Rāzī flourished, until the end of the thirteenth century.⁴⁶⁶ I will not attempt to deal with the problems of its manuscript history here. In any case, my claims do not concern the history of optics since I will not argue that Rāzī provides a fresh look at optics. I am interested in his philosophical views as they may relate to alternative scientific theories. The reference to Ibn al-Haytham in Rāzī's *Jāmī' al-'Ulūm* may be explained in a number of ways. For example, it could be the result of a scribal interpolation that was intended to suggest the source of Rāzī's list. In the following I examine several reasons why it is likely that Rāzī was drawing on Ibn al-Haytham's *Optics*. The discussion suggests that Rāzī was interested, from a philosophical perspective, in what has been recognized by historians of science as the unique contributions that Ibn al-Haytham advances in the *Optics*.

What is important for our analysis is that Rāzī notes a number of crucial points about objects of sight that relate to his rejection of the theory of simulacra and impression. First, following his list, he states that the only true and immediate objects of sight are color *and* light, and all the other properties are not true objects of sight. Avicenna does not state that light is an object of vision. Like Rāzī, Ibn al-Haytham states, in II.3, that the "forms" of color and light are the primary objects of sight.⁴⁶⁷ Rāzī then moves on to consider the question of whether color simpliciter (*lawn*) or a specific color (e.g., red, green, and so on) is perceived first. He provides arguments for the position that

⁴⁶⁶ A. I. Sabra states: "It is even more remarkable that no one in the Islamic world seems to have made effective use of Ibn al-Haytham's *Optics* until the end of the thirteenth century". See his "Optics, Islamic", *Dictionary of the Middle Ages*, vol. 9 (New York: Scribner, 1987), 240-247. See also Sabra's remarks in the Introduction to the *Optics*, 44.

⁴⁶⁷ 231-235.

lawn is perceived prior to a specific color. Ibn al-Haytham, following his list of objects of sight in II.3 and his discussion of light and color being the true objects of the sense of sight, moves on to consider the question of whether *lawn* or a specific color is perceived first and argues that *lawn* is perceived first.⁴⁶⁸ Rāzī then states the position that the perception of a particular color only ever occurs at a moment of time (*lā yakūnu illā fī zamān*). Rāzī provides the example of a top (*al-duwwāma*; i.e., a child's toy with colored markings) which is stripped at the top and spins quickly. Our sight sees what Rāzī describes as a “composite of all the [specific] colors [of the stripes]”. That is, we do not see the specific colors because the required instant of time to observe a particular color does not obtain. Ibn al-Haytham asserts this very position next in his own discussion. He states, “The perception of the quiddity (*māhiyya*) of a color only occurs in [an instance of] time” (*lā yakūnu illā fī zamān*).⁴⁶⁹ Ibn al-Haytham uses the same example of the top (*duwwāma*) to illustrate his point. Rāzī then provides a very brief discussion of how the secondary objects of vision are connected (or not connected) to the primary ones. This is a very brief overview that Rāzī provides of the points Ibn al-Haytham raises in his lengthy discussion of individual secondary objects of vision.

More important than the textual correlation is the philosophical significance that Rāzī seems to find in all this. Here, Rāzī's example of the top is particularly important. First, it should be noted that an instant of time is not an ontologically minimal part of time. Rather, this is what Ibn al-Haytham stipulates as the minimal length of time the eye needs to see an individual color (*zaman^{an} maḥsūs^{an}*), whatever that may be.⁴⁷⁰ More importantly, the example of the top is based on Ibn al-Haytham's unique theory of the

⁴⁶⁸ 236.

⁴⁶⁹ 238.

⁴⁷⁰ 239.

image or, as Sabra has called it, the “ordered form”.⁴⁷¹ That is, the perceived image of an object of sight is, first, a composite of colors which is produced by the one-to-one correspondence of points of color on the object to the interior surface of the eye, transmitted by straight rays from each point on the object. All other properties and forms of the object follow upon this initial color image. As Sabra states, “The theory maintained that ‘perception’/idrāk/comprehensio of any object in the field, and of all its visual properties (size, shape, distance and the rest), consisted in a mental reading of this color mosaic (which, alone, is said to be first ‘sensed’ or registered on the crystalline’s surface)...”⁴⁷² Again, it is important to note that the “points” involved are not ontological minima but posited to explain mathematically the correspondence of the image to the object and to explain what Ibn al-Haytham construes as the problem of “distinct vision”, to which we shall return.⁴⁷³ Rāzī’s discussion of the child’s top raises this point of “point-forms” (*nuqṭa*). He states that the problem is that each point of color is not maintained in rest for the minimal amount of time required to have sight of it (*zamān^{an} maḥsūs^{an}*).

The most important point regarding this discussion is that, in Ibn al-Haytham’s theory, the link between the immediate sight of a point-form color image and a fully and consciously perceived object of sight is a kind of inference (*bi-ḍarb min ḍurūb al-qiyās*). Recall that Rāzī, in the *Mabāḥith*, had stated that most things perceived by sight draw on a certain inference (*qiyās^{um} mā*). Importantly, Ibn al-Haytham’s entire discussion in II.3, which precedes the list that Rāzī reproduces, is the discussion of how inference (*qiyās*), discernment (*tamyīz*) and induction (*istiqrāʾ*) are required on the part of our mind to

⁴⁷¹ A.I. Sabra, “Ibn al-Haytham’s Revolutionary Project in Optics: The Achievement and the Obstacle,” in *The Enterprise of Science in Islam: New Perspectives* (Cambridge, Mass.: The MIT Press, 2003), 96.

⁴⁷² Ibid., 96.

⁴⁷³ See Sabra, “Ibn al-Haytham’s Revolutionary Project,” 96-99.

move from color images to intelligible perceptions. These are not conscious deductive inferences, but fast mental processes posited to account for what Ibn al-Haytham calls “distinct vision”. He states, “[V]ision is not achieved by pure sensation alone, and that it is accomplished only by means of discernment and prior knowledge...and that without discernment and prior knowledge sight would achieve no vision whatever nor would there be perception of what the visible object is at the moment of seeing it.”⁴⁷⁴

Rāzī is not particularly interested in the details, or in providing a comprehensive overview, of Ibn al-Haytham’s theory. Rather, he is interested in its philosophical significance, as suggested in his selective discussion. Indeed, it is notable that of all the problems in optics discussed in the vast *Optics* of Ibn al-Haytham, Rāzī chooses to discuss the specific issues regarding the objects of vision that Ibn al-Haytham assesses in II.3. As our above analysis suggests, Rāzī usually has a good reason for specifying problems. What Rāzī seems to achieve in the *Mulakhkhaṣ* by distinguishing the primary sensible of color and subordinating the rest to our immediate perception of the color image, is to suggest more precisely how one might undercut the role of simulacra and the impression of forms. Indeed, as Sabra notes, although Ibn al-Haytham uses “forms” (*ṣūra*) and “quiddity”, they have no philosophical import in Ibn al-Haytham’s system. In fact, a central point of Ibn al-Haytham’s argument in Book I is that form-reception is not a sufficient condition for knowledge. That is, Ibn al-Haytham views the problem exactly as Rāzī had, though Rāzī formulates and motivates the problem philosophically.

More significant, perhaps, are the consequences Ibn al-Haytham’s results bear on philosophical epistemology. As suggested in the quote above, Ibn al-Haytham believes

⁴⁷⁴ Translated by Sabra, “Ibn al-Haytham’s Revolutionary Project,” 104.

that vision, or more specifically image formation, is rooted in mind-dependent processes. That is, complex objects require mental inferences, which are dependent on physical constraints (like the minimal time required for sight to accurately perceive). More importantly, our conception of things is dependent in part on our previous experiences and how our faculties discern and organize our experiences. Ibn al-Haytham puts this premise to much use, for example, in his discussion of the errors of perception. This approach differs radically from the form-impression theory, which posits only the required number of experiences until an accurate likeness of the object is formed. That is, the theory of impression is based on the assumption that the objects our faculties pick out are in fact fundamentally distinct ontological objects. Now, Ibn al-Haytham does not explicitly discuss the metaphysical significance of his theory, but an immediate consequence of his theory is that our mental processes and experiences determine to some extent what our objects of perception are (and that these objects may not identify ontologically basic things).

Rāzī quite clearly understands the relevance here of Ibn al-Haytham's theory. It is not clear whether Ibn al-Haytham is Rāzī's primary or sole scientific inspiration, but the components of Ibn al-Haytham's theory does corroborate, and in fact directly parallel, Rāzī's epistemology. This applies not only to Rāzī's rejection of mental forms and noumenal properties, but also his positing that the primary objects of knowledge are sensible simples (see, for example, **T2**). On Rāzī's account, our knowledge of composites is based on our more basic and certain knowledge of simples. This, it will be recalled, cut out the third option of substantial simples, which correspond to the essences of things (and which in turn correspond to visual forms or simulacra). Moreover, Ibn al-Haytham's

theory, so far as it concerns Rāzī, only posits observable or phenomenal principles. Indeed, for this reason, Sabra calls Ibn al-Haytham's optics "a phenomenalist theory." What is remarkable here, and probably quite satisfying to Rāzī, is that one only needs to posit the vision of colors arranged in order and all other properties of things are explained as following from that starting-point. There is ambiguity about how much of this is mind-dependent, but that is entirely welcome to Rāzī. Recall that Rāzī's structured universals were simply those picked out by a language community. Here, there is a parallel between the intersubjective consensus of language and the mind-dependent processes required for concept formation. Recall that Rāzī held that the nature of naming things is beyond our grasp and thus does not concern him philosophically. Similarly, Rāzī does not go into the details of Ibn al-Haytham's psychology. Rather, Rāzī simply posits a certain kind of inference required to obtain sensibles that are clearly not the immediate objects of vision.

What Rāzī ultimately gains with Ibn al-Haytham as a positive philosophical position is, I believe, his claim that knowledge is simply a "relational state". In the *Mabāhith*, Rāzī announced the truth of this claim, as opposed to the theory of impression, but it was not clear why. He had in fact stated there that we posit mental forms of *objects* in the case of things that are not externally existent because there is nothing to which our ideas would otherwise correspond. However, Rāzī states that in the case of external existents, we need not posit forms but only a relational state. The simulacrum thus becomes the explanatory third wheel in Rāzī's philosophical analysis of the theory of sight. It is hard to understand what Rāzī would mean by all this, if we did not have Ibn al-Haytham's systematic theory of optics. In particular, to Ibn al-Haytham, perception is not simply sensation (or abstraction) but a constant comparison of present sensations with

past sensations and experiences. As such, vision is not simply the transmission of forms from the object to the knower, but a particular relation between the object and the “state(s)” of the knower.

In the following, I will explore some materials that will shed light on Rāzī’s position on concept formation, beginning with induction. I argue that his notion is based on a theory of perception of phenomenal regularity in the external world.

I begin here by discussing some points that Rāzī raises at the end of the logic of the *Mulakhkhaṣ*. In his discussion of demonstration in the *Mulakhkhaṣ*, he assesses premises that serve as the first principles for demonstrations.⁴⁷⁵ It should be noted that Rāzī often begins the discussion of demonstration by pointing out that logicians have prolonged their discussions here. His lack of interest in demonstrative theory, specifically in his independent works, is quite clearly connected to his resistance to Aristotelian essentialism and demonstrative knowledge, as discussed above. He suffices with the following as his view of demonstration, which is simply his view of deductive proof: “That which we state is that you have come to know from what preceded [i.e., in syllogistics] how the formulation (*tarkīb*) [of an argument] should be so that it is valid and productive. So we say that if those formulations apply to premises that are certain, then the syllogism is composed of certain premises in a manner whose formulation is known to be valid, and so the conclusion is entailed by it necessarily.”⁴⁷⁶ Significantly, Rāzī does not raise the discussion of the distinction between *innī* and *limmī* proofs (*quia*

⁴⁷⁵ Rāzī, *Manṭiq al-Mulakhkhaṣ*, 343.

⁴⁷⁶ Ibid.

versus *propter quid* proofs), which is central to Avicenna's approach to demonstrative science.

Following his discussion of first principles, Rāzī considers several problems raised by skeptics (*al-sūfistā'iyya*) that undermine the possibility of certain knowledge. Among the problems he raises are those that apply to our knowledge of everyday events (*al-ʿādiyyāt*). He provides the examples of our being certain that Zayd at time t^1 is the same Zayd at t^2 , and the classic *kalām* example of pots and pans turning into gold or wise men when one leaves one's home. The question he raises on behalf of the skeptics is how the intellect sometimes judges some things with a certainty that is similar to our certainty of first principles. But our knowledge of those things, such as that of everyday events, turns out to be susceptible to doubt, so such assertions (*jazm*) on the part of the intellect are no proof for the actual certainty of a principle. Rāzī argues that this point applies to the *falāsifa* as well as the *mutakallimūn* since, first, the *falāsifa*'s response requires accepting their (speculative) proofs and, second, such assertions obtain prior to our knowledge of demonstrative proofs. That is, if one begins with the assumption of such skeptical principles, one cannot obtain demonstrative knowledge. Thus, the objection is directed at our immediate certainty of such matters. Subsequent to listing the problems raised by skeptics, Rāzī responds with a blanket statement to the effect that any response to an objection against self-evident truths requires inferential arguments (*naẓar*) and would thus render what is self-evident inferential. However, Rāzī states that even if our assertion of such things does not require a refutation of skeptical problems, he will provide responses in a supplementary manner. Here he points to responses he provides to skeptical objections in his earlier work, the *Nihāya*.

Significantly, Rāzī suggests in the *Nihāya* that knowledge of everyday events in the world does provide *at least some sort of certainty*. This perhaps comes as a surprise considering that, just a few pages before, he refutes the certainty of knowledge derived from experience and induction, since it would require, for example, our assertion that God is not a Willing Agent (that is, certainty about causal events would rest on asserting the necessity of natural or secondary causes and effects). In the *Nihāya*, Rāzī is particularly interested in the problems raised by various categories of skeptics.⁴⁷⁷ The fourth objection advanced on behalf of the first category of skeptics, whom he refers to as the *lā-adriyya*, concerns the problem of our knowledge of ordinary events. The same examples discussed in the *Mulakhkhaṣ* are found here, though he provides another reason as to why this objection applies to the *falāsifa* as well. That is, the *falāsifa* cannot rule out with certainty the occurrence of a rare peculiar form (*shakl gharīb nādir*) in the heavens that would cause such erratic events.⁴⁷⁸

⁴⁷⁷ Rāzī divides skeptics into three broad categories: (1) *lā-adriyya* (whom he defines as those who refrain from asserting or denying anything); (2) *inādiyya* (those who assert that nothing exists or deny that there is anything real); (3) *indiyya* (those who claim that the truth or reality of things are determined by our beliefs and not that the truth of our beliefs are determined by their correspondence to reality). Each category is treated in this order, assigning most detail to (1) and the least to (3), fols. 18-23 in the *Nihāya*, after which he provides responses.

⁴⁷⁸ Rāzī is well aware that the orbs according to the *falāsifa* are eternal and changeless, as he subsequently discusses this position in the *Nihāya*. He is referring to Avicenna's acceptance of possible rare events in the world that we cannot necessarily explain or anticipate. In his discussion of the *reason-why* (*limmiyya*) that explains odd occurrences (*umūr gharība*) that contravene ordinary events (*khawāriq al-ʿāda*), Avicenna states as the third reason: "Celestial powers between [the heavens] and the mixtures of earthly bodies specified by positional conjunctions (*hayʾāt wadʿiyya*)... which is followed by the occurrence of odd effects (*āthār gharība*).” See *Sharḥ al-Ishārāt*, 2, 663. The form Rāzī refers to is perhaps the positional conjunctions that Avicenna mentions, since *shakl* and *hayʾa* hold similar connotations. Rāzī is speaking loosely, but the point does seem to hold in that our near certain knowledge of everyday ordered events, even according to the *falāsifa*, may be undermined.

His responses are relatively brief.⁴⁷⁹ In response to the fourth objection, specifically regarding the problem of identifying Zayd, Rāzī states, “What is perceived by the senses is the existence of this observed [individual], about which there is no doubt. As for this [individual] being the one observed yesterday, this is not a matter of what is perceived by the senses. So a mistaken [judgment] regarding it is not a mistake regarding sense perception. And this is the [same] response [that applies] to their statement that if we step out of the house, we admit the possibility (*jawwaznā*) that what is in it by way of pots and pans turn into learned men, because this possibility (*tajwīz*) (...) ⁴⁸⁰ regards the existence of a sensible thing but rather regards something that is not sensible, and so this is not a charge against [our knowledge of] objects of sense.”⁴⁸¹ The likeliest candidate I can propose for the illegible term is *yushakkikunā*, in which case a negation would have been left out.⁴⁸² In any case, from the preceding points, it is fairly clear what Rāzī intends to say: the possibility that one might consider in such cases applies only to something beyond the objects of sense perception. Importantly, what is not being debated here is when one finds certain sensible features of Zayd that leads one to suspect whether Zayd is in fact the Zayd you knew the day before. Nor are we considering the inability of our senses to distinguish between individual objects of sense perception that closely resemble each other. Rather, it is assumed that one possesses the conviction that Zayd is Zayd through sense perception, a conviction that engenders a level of certainty that we

⁴⁷⁹ Although he does not expand further, he refers to an even more expanded discussion in a work of his entitled *Kitāb al-Manāẓir*, which is apparently on vision, where he expands on problems of sense perception. I was not able to locate this source and it is unclear whether or not it is extant.

⁴⁸⁰ Illegible word of 5-6 characters.

⁴⁸¹ Rāzī, *Nihāya*, fol. 25.

⁴⁸² On line 13 of the same page, a similar form appears with the negation *lā*, which is clearly “*lā yushakkikunā fī*”. Although the *shīn* is not pointed, pointing is not consistent in the manuscript. Many unpointed instances of *shīn* can be found on the same page, for example: *shakhṣan* on ln. 5; *shūhida* on ln. 7; *shayʿ* on ln. 10.

normally obtain regarding everyday objects. The passage reveals an important point regarding Rāzī's overall epistemology: that he not only gives priority to what is afforded by sense perception over rational or speculative possibilities, but, consistent with his skepticism about metaphysical or essential knowledge of things, Rāzī does not rule out the possible occurrence of what contravenes, or goes beyond, our senses. In his view, our knowledge that is based on the phenomenal qualities of Zayd remains necessarily true at the level of everyday certainty. However, if beyond those phenomenal qualities change at some deeper level occurs, this requires a measure of proof that is beyond what we can rationally determine.⁴⁸³ Elsewhere Rāzī emphasizes the importance of our admission of this possibility, i.e., the certainty engendered by sense perception is not one that overrides the admission of this deeper possibility.⁴⁸⁴ Moreover he states there the principle that applies to our knowledge of Zayd is to be generalized and applied to cases not limited to the class of things considered.

Prior to the above passage, Rāzī responds to the third skeptical objection raised by the *lā-adriyya*, which interrogates the source of necessary knowledge (*darūrī*) and whether the senses are a means to obtaining it:

Their statement: Innate disposition (*fiṭra*) is either sufficient in obtaining these necessary [first] principles (*darūriyyāt*) or not. We state that it is not

⁴⁸³ This of course runs contrary to Avicenna's requirement for true certainty arrived at by demonstration as discussed below. See *Demonstration*, I, 8.

⁴⁸⁴ In a much later work, the *Maṭālib al-ʿĀliya*, which diverges in many ways from the earlier works that I have focused on, Rāzī raises the same point in a very different context. In fact he makes the point in one of the principles (*uṣūl*) of his new rational approach to proving prophecy. He states, "The second principle of those principles upon which the proving of prophecies turn (*madār*): That it is not impossible for the admission and possibility of a thing to be known, and for certainty (*jazm*) and definitude (*qaṭʿ*) to still obtain that [a thing] does not exist or obtain." He goes on to explain that the certainty that he means in knowing that Zayd is Zayd is fundamentally connected to sense perception. *Al-Maṭālib*, 8, 97-98. This seems to be how later Ashʿarites viewed our knowledge of everyday events, which they claimed is based on a sort of sense induction, see Jurjānī, *Sharḥ al-Mawāqif*, I, 90.

sufficient; rather, it is necessary to invoke (*istiḥḍār*) the conception (*taṣawwur*) of the individual terms of these primary propositions (*al-qadāyā al-awwaliyya*). Then, when those conceptions are obtained, assent necessarily obtains. [But] those conceptions are only derived through the senses. Hence, we do not claim that these propositions are only [obtained] by means of the induction of those judgments from experiential statements (*mujarrabāt*), so that what you mentioned [in terms of objections] might apply to us. Rather, sense perception provides the forms (*ṣuwar*) of these quiddities in the mind. If those forms obtain, then the obtaining of that assent is entailed by it.⁴⁸⁵

Rāzī's response invokes themes discussed by Avicenna in III.5 of *Demonstration* concerning whether the absence of a sense faculty or a type of sense perception entails the absence of certain objects of intelligible or universal knowledge.⁴⁸⁶ Like Rāzī, Avicenna affirms the need for sense perception and refers to "essential induction" (*al-istiqrā' al-dhātī*), which provides individual principles or simple concepts. He states that this kind of induction is one that is immediately associated with sense perception.⁴⁸⁷ Significantly, Avicenna distinguishes between "essential induction" and induction as a

⁴⁸⁵ *Nihāya*, fols. 24-25.

⁴⁸⁶ Indeed, from the manner in which the discussion proceeds, it seems that the problem posed at the beginning of Avicenna's chapter in *Demonstration* may itself concern arguments against his view of knowledge.

⁴⁸⁷ *Demonstration*, 158-7, where Avicenna discusses the parallel between the principles or individuals given to the senses to the axioms of mathematical astronomy and natural philosophy. It is important to note that induction here is connected *immediately* by Avicenna to the senses, and is not simply dependent on them, because the argument shows that even rational knowledge is dependent on sense knowledge, though in a removed sense.

method of proof.⁴⁸⁸ The latter requires the intellect to derive a universal judgment from particular instances. Although essential induction, for Avicenna, reliably supplies individual concepts or the simple terms that form the premises of demonstration, it does not provide certainty (or at least, the certainty he requires here) with regard to judgments. In *Demonstration* I.9, before his discussion of experiential knowledge treated above, Avicenna considers the nature of our knowledge of basic or self-evident premises, which he construes as those that do not require an explanatory cause (*sabab*) to know that the predicate holds of the subject.⁴⁸⁹ Such premises have no explanatory cause because they are self-evident (*bayyin fī nafsīhi*). However, Avicenna considers whether they are all self-evident or whether they become evident through induction. Here he distinguishes two possibilities: induction through sense perception *alone* and rational induction (*bi-l-‘aql*). He finds both possibilities problematic and suggests that the predicate simply applies to each individual of the subject self-evidently. Importantly, Avicenna eliminates sense-based or essential induction because it “does not necessitate permanence nor the exclusion of a thing that can possibly fail to hold.”⁴⁹⁰ Here Rāzī departs with Avicenna, particularly with respect to the requirement for certainty and demonstration. Avicenna states in the previous chapter, I.8, which discusses certain knowledge:

⁴⁸⁸ Thus, he treats the latter in the proofs section of the *Ishārāt*, whereas he discusses the former in his discussion of experiential knowledge which is found in the chapter on kinds of premises, i.e., that which supplies the matter for proofs.

⁴⁸⁹ The title of the chapter is: “Concerning the way to understand that whose predicate has no cause in its subjects, concerning induction and what it entails and experiential knowledge and what it entails.” *Demonstration*, I.9, 43.

⁴⁹⁰ *Ibid.*, 44. That what is at issue is not simply rational truths, such as the principle of non-contradiction, is suggested in his rejection of rational induction, where he states that what is known of the individuals is either their essential parts (which he rules out) or common accidents that, for some reason, apply to individuals. Such an analysis would only apply to external material things.

If someone says: every man is risible, every risible man is rational – it is not necessary from this that he believe with certainty that every man is rational in such a manner that it is not possible for him to believe in the possibility of the contradictory of this. This is so since laughter, or the laughing power, is caused (*ma^clūla*) by the power of rationality, so as long as the necessity of the power of rationality to human beings, and also the necessity of the power of laughter being subordinate to the power of rationality, is not understood, it is not necessary that he believes with certainty that it is not possible for there to be a human being who does not have the power of laughter. ([That is] unless certainty exists in that [person] through the senses, but the senses do not exclude the contrary of what is not perceived by them, or through experiential knowledge.) As for the intellect, *it is possible, if it disregards phenomenal regularity (al-^cāda), for it to have doubts about this and to conceive that human beings do not have the power of laughter perpetually, and for all [human beings], or to conceive of it as impermanent.*⁴⁹¹

Here, Avicenna underscores a fundamental premise that sets him apart from Rāzī: certainty should exclude the possibility of a thing's being contrary to how it seems. Even more, whatever falls short of a full essential explanation falls short of the certainty, that is, the complete, perpetual, essential certainty (*yaqīn^{an} dhātiyy^{an} dā'im^{an} tām^{an}*) that

⁴⁹¹ *Demonstration*, I.8, 38. I translate *cāda* as “phenomenal regularity”, because Avicenna allows for that to obtain, which is based primarily on experiential or sense knowledge and not demonstration. This accords with his view of the knowledge requirement in certain particular sciences and arts.

Avicenna requires.⁴⁹² Avicenna's position is, of course, based on his Aristotelian commitment to demonstrative proof as the source of true scientific knowledge, as we discussed above.

Returning to Rāzī's discussion in the *Nihāya*, his reference to sense knowledge as providing a sort of certainty is akin to Avicenna's generalization of phenomenal regularity (*ʿāda*) acquired through sense perception or essential induction. Rāzī however refrains from using the term induction, quite likely because he grants the objections against rational induction raised by the skeptics. Indeed, an objection he raises on their behalf is that induction presumes rational principles that make claims beyond what is afforded by sense perception. Here it is clear that the standard for knowledge is raised as induction seeks to verify knowledge of things at a deeper level. For example, Rāzī states that induction in this sense assumes the principle that "Things equal in relation to a certain thing are equal".⁴⁹³ Rāzī states that the claim that they are equal cannot be affirmed by the senses by way of verification (*taḥqīq*). That is, "equal" here is taken in the strong ontological sense of essential identity, as indicated by the term *taḥqīq*, which, as encountered previously in the *Mulakhkhaṣ* regarding essential definitions, refers to substantiating claims on a deeper demonstrative level.⁴⁹⁴

⁴⁹² *Demonstration*, I.8, 43; I.9, 45, and discussed throughout the book in detail and distinguished from non-demonstrative knowledge.

⁴⁹³ *Nihāya*, fol. 21b.

⁴⁹⁴ For a number of further objections see *Nihāya*, fol. 21.

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