

# Beyond Atoms and Accidents

## *Fakhr al-Dīn al-Rāzī and the New Ontology of Postclassical Kalām*

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### Abstract

This article explores a novel approach to the analysis of the external world in post-classical Ash‘arite *kalām*. While discussions of physical reality and its fundamental constituents in the classical period of Islamic thought turned chiefly on the opposing views of *kalām* atomism and Aristotelian hylomorphism, in the postclassical period *kalām* thinkers in the Ash‘arite tradition forge a new frame of inquiry. Beginning most earnestly with the philosophical works of Fakhr al-Dīn al-Rāzī, a critical approach is developed addressing received views in ontology, including the relation of substance to accident, the status of Aristotelian form and matter, and part-to-whole relations. Drawing on Rāzī’s *al-Mulakhkhaṣ* and *al-Mabāḥiṭh*, *kalām* thinkers develop several concepts to distinguish arbitrary or mind-dependent (*i’tibārī*) composites (‘man-plus-stone’) from non-arbitrary composites (e.g., tree, paste, and house). Most notably, they adopt a substance-plus-accident ontology in opposition to the Aristotelian hylomorphism of *falsafa*. The *mutakallimūn* will conceive of composites as possessing ‘real unity’ (*ḥaqīqa muttaḥida*) while dispensing with the explanatory and causal role of Aristotelian substantial forms.

### Keywords

kalām – atomism – hylomorphism – empiricism – Fakhr al-Dīn al-Rāzī

In an important article on *kalām* ontology, the late A.I. Sabra proposed that Ash‘arite *kalām* provided a “consistent” view of sensible reality as a “world of contingent events,” based loosely on thirteen propositions he identifies as central to thinkers from Abū l-Ḥasan al-Ash‘arī (d. c. 936) to al-Sharīf al-Jurjānī

(d. 1413).<sup>1</sup> In this article, I explore a larger turn in Ash‘arite philosophy, where *kalām* thinkers explore alternatives to the standard ontologies of classical *kalām* and *falsafa*. While discussions of sensible reality and its fundamental constituents in the classical period of Islamic thought (roughly, from the eighth to the twelfth century) turned chiefly on the opposing views of *kalām* atomism and Aristotelian hylomorphism, in the postclassical period thinkers in the *kalām* tradition analyze problems from within a broader frame of inquiry. Beginning most earnestly with the works of Fakhr al-Dīn al-Rāzī (d. 1210), a novel approach emerges in Ash‘arite sources focusing on foundational problems in ontology, including the relation between substance and accident, the unity of composite entities and, ultimately, whether the world is made up of anything more than discrete atoms, accidents, and void. The analysis, I propose, is conducted within a general discourse adjudicating between various positions in *falsafa*, *kalām* and the ancient or Arabic sciences, allowing thinkers to explore and engage with a broader domain of philosophical inquiry.<sup>2</sup> From within Rāzī’s frame of inquiry, later *kalām* thinkers begin to explore an ontology of the world that asserts neither the hylomorphism of *falsafa* nor the old, reductive atomism of *kalām*. The alternative *kalām* ontology draws on Rāzī’s critique of Aristotelian form-matter analysis as epistemically suspect and explanatorily otiose. In developing a positive alternative, Rāzī and some later Ash‘arite thinkers draw on a wider scope of ancient and Islamic sciences in developing alternative ways of analyzing composite substances.<sup>3</sup>

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- 1 A.I. Sabra, “*Kalām* Atomism as an Alternative Philosophy to Hellenizing *Falsafa*,” in *Arabic Theology, Arabic Philosophy*, ed. by J.E. Montgomery (Leuven: Peeters, 2006), 199–272.
  - 2 Calvin Normore sensibly suggests: “Anyone setting out to study the history of metaphysics has to make a fundamental choice between studying the history of Aristotle’s texts collectively called ‘Metaphysics’ and the traditions they spawn, and studying the history of fundamental philosophical problems whether or not they were considered in those texts or traditions.” (See Normore, “Metaphysics in the Orbit of Islam,” in *Aristotle and the Arabic Tradition*, ed. by A. Alwishah and J. Hayes [Cambridge: Cambridge University Press, 2015], 177–99.) The following analysis shows that Rāzī (self-consciously) develops an anti-Aristotelian, anti-hylomorphic approach to ontology and the analysis of empirical reality. In other words, the following texts, I argue, cannot be read as Rāzī’s interpretation or appropriation of Avicenna or Aristotelian metaphysics but, rather, as setting out an alternative to the latter approaches with respect to fundamental principles or *uṣūl*, as Rāzī will refer to them.
  - 3 This analysis explores one aspect of how *kalām* emerges as a philosophical force that articulates views endogenous to the dynamics of Islamicate thought, revising the received narrative of the intellectual paralysis and dogmatism of the Ash‘arite *kalām* tradition. In his important article on postclassical Islamic thought, Robert Wisnovsky states: “[A]pproaching and understanding the long and complex history of Islamic philosophy in view of its particular dynamic, will help to lay to rest the old view: that Islamic philosophy is interesting only insofar as it plays a minor role in driving forward the familiar narrative of Western thought” (Wisnovsky, “The

Regarding the tired debate between classical *kalām* and *falsafa*, Sa'd al-Dīn al-Taftāzānī (d. 1389) notes in his commentary on the widely taught *al-Nasafiyya*: “For this reason [i.e., the relative weaknesses of both atomism and hylomorphism], Imam Rāzī leaned towards reserving judgment (*tawaqquf*) [on the problem]. And if it is asked, ‘Is there a benefit to this dispute?’”<sup>4</sup> One response to the latter question, reported by Taftāzānī, is that despite the “weaknesses” of affirming (*ithbāt*) atomism, the benefit was chiefly doctrinal, namely the deliverance from the errors of the *falāsifa*, such as the doctrine of the world’s eternity and the denial of bodily resurrection.<sup>5</sup> Given the importance of atomism as a guiding frame of inquiry for postclassical *kalām*, as Sabra suggests, Taftāzānī’s concession is remarkable. We might chalk it up to the tendencies of Ash‘arite dialectics, which is more interested in the defense of doctrine than in philosophical coherence. In the following, it is argued that the position of *tawaqquf* is grounded in a larger philosophical turn, beginning with Rāzī, where the question of the (in)divisibility of corporeal reality need not dictate our analysis of higher-order entities, from the four elements to living beings. Later Ash‘arite thinkers, especially those producing and commenting on more advanced works of *kalām*, seem less concerned with opposing *falsafa* than with developing coherent philosophical and theological views. Ash‘arite philosophers begin to recognize that the question of atomism—construed as the problem of the (in)divisibility of physical magnitudes (including body, space, time, and motion)—need not exhaust the ontology of things, and specifically what kinds of simple and composite substances populate the world. Otherwise put, they realize that whether physical magnitude is infinitely divisible or not, items that we (empirically) identify as ‘simples’ or homogenous wholes can be viewed as forming relations of dependencies. In postclassical *kalām*

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Nature and Scope of Arabic Philosophical Commentary in Post-Classical (ca. 1100–1900AD) Islamic Intellectual History: Some Preliminary Observations,” *Bulletin of the Institute Of Classical Studies of the University of London* 47 [2004], 159). Regarding the old narrative, Josef Van Ess states: “[T]he *kalām* phenomenon reached its zenith very early; its most creative period did not occur after it had come of age, but well before, at a time when signs of tedium and paralysis had not yet appeared” (van Ess, *The Flowering of Muslim Theology*, tr. by J.M. Todd [Cambridge, MA: Harvard University Press, 2006], 4). The following problematizes the view of Rāzī as being mainly a polemical or skeptical thinker.

- 4 Sa'd al-Dīn al-Taftāzānī, *Majmū'at al-hawāshī al-bahīyya 'alā Sharḥ al-'Aqā'id al-nasafiyya* (Cairo: Maṭba'at Kurdistan al-'ilmiyya, 1329AH), 1:74–5.
- 5 The most extensive analysis of Rāzī’s arguments for and against atomism has been conducted in various works by Eşref Altaş; see, most importantly, “An Analysis and Editio Princeps of Fakhr al-Dīn al-Rāzī’s *Risālah: Al-Jawhar al-Fard*,” *Nazarīyat* 3 (2015): 77–178; Altaş, “Fakhr al-Dīn al-Rāzī’s Epistle on Al-Hayūlā wa al-Şūrah: A Study and Editio Princeps,” *Nazarīyat* 1 (2014), 61–108.

works, thinkers begin to construct a world that possesses thicker structure or explanatory complexity than in classical *kalām*, attempting to determine what, if anything, distinguishes an arbitrary object, like ‘human-plus-stone,’ from objects with empirical properties and powers, like medicinal paste or the substances of alchemy.

To distinguish arbitrary or mind-dependent (*i’tibārī*) composites from non-arbitrary composites, thinkers will look at a variety of dependency relations that can be said to hold between parts and the composite whole, relations that allow the *mutakallim* to view the composite as some kind of ‘real unity’ (*ḥaqīqa muttahiḍa*). Importantly, *kalām* thinkers will expressly dispense with the explanatory and causal role of Aristotelian substantial forms, which constitute the brick and mortar of the Aristotelian world advanced by the Peripatetic *falāsifa*. The question *kalām* thinkers raise regarding composite substances is not whether such things correspond to an underlying form and matter, but whether there are any mind-independent truth-conditions distinguishing items like man-and-stone from trees, mixtures, and artifacts. Most significantly, composite substances and powers (construed as empirical capacities rather than natures) can be viewed as *substance-plus-accident* wholes, a position that was broadly prohibited in received Aristotelian ontologies.<sup>6</sup> This alternative *kalām* view emerges out of a longer arch of arguments Rāzī develops regarding relations between substance and accidents in Book II of both the *Mabāḥith* and the *Mulakhkhaṣ*, as outlined below. Specifically, Rāzī develops an ‘attributive’ analysis of substances and elementary bodies, which rests on empirically established properties as distinguished from the form-matter ontology of Aristotelian philosophy.<sup>7</sup>

I begin in Part 1 with an overview of the ontologies of classical *kalām* and *falsafa*, highlighting the relevant differences between classical Ash‘arite atomism and the hylomorphism of the *falāsifa*. In Part 2, the discussion begins with

6 On the problem in the preceding tradition of *falsafa*, see Fedor Benevich, “Fire and Heat: Yahyā b. ‘Adī and Avicenna on the Essentiality of Being Substance or Accident,” *Arabic Sciences and Philosophy* 27 (2017): 237–67. I argue that Rāzī’s approach breaks from the views of earlier *falāsifa*, including Avicenna’s allowance of ‘accidental substances’ within a hylomorphic ontology. Rāzī’s substances and attributes are empirical objects of analysis in the manner proposed below.

7 Rāzī has long been characterized as a polemical thinker and skeptic. With regard to modern scholarship, I argue in the following that this is in part due to the lack of attention to how Rāzī develops positive philosophical views through critique and aporetics over a long stretch of topics and space in Books I and II of the *Mulakhkhaṣ* and the *Mabāḥith*. Moreover, his explicit statements of his *own* views are more clearly stated in the *Mulakhkhaṣ* (see, for example, texts cited in Part 3), which has been less accessible to scholarship than the *Mabāḥith*.

Rāzī's critique of Aristotle's hylomorphism in the context of physics, where the latter first introduces form-matter analysis with respect to his account of change in the natural world. Rāzī's analysis of hylomorphism in its physical context, conducted in Part I (*al-jumla al-ūlā*) of Book II of the *Mulakhkhaṣ* and the *Mabāhith*, develops a more fundamental critique of *Aristotelian* hylomorphism than his better known critique of Avicenna's more metaphysical analysis of absolute body and corporeal form.<sup>8</sup> Rāzī's treatment of Aristotelian hylomorphism in natural philosophy leads to his development of an *attributive* analysis of composite substances, which introduces substance-plus-accident objects and powers into Rāzī's frame of analysis. In Part 3, I examine Rāzī's application of the attributive approach to the analysis of perceptible bodies, focusing on his criticism of the four elements as the fundamental substances of Aristotelian cosmology. Here, in an analysis of perceptible phenomena in Book II, Rāzī applies the indirect realism or phenomenalism set out in his logic.<sup>9</sup> Part 4

8 The point is significant as it has been claimed that Rāzī is unaware of Aristotle's approach to form-matter analysis and motion. This is not to say that Rāzī's view of Aristotle is not influenced by Avicenna. Whether Rāzī is directly reading the Arabic translations of Aristotle's text is a question that I explore in an upcoming study.

9 The analysis strongly suggests that Rāzī's anti-essentialist program in logic is preparatory for his anti-hylomorphic, attributive analysis. Rāzī's epistemology of perception can be viewed as a kind of indirect realism or phenomenalism, though the latter should not imply that Rāzī is an idealist or doubts the existence of external things. He distinguishes between perceptible properties and the fundamental essences of external things. Though fundamental essences are perceptually and deductively inaccessible, he consistently affirms that there are underlying essences beyond the reach of perception. I tentatively suggest that Rāzī holds that a proper inquiry into the ultimate essences of things is the domain of theology and exegesis, where scripture, *kashf* (spiritual experience), and rational inquiry can be combined in a contingent manner; this is the kind of metaphysical theology Rāzī pursues in *al-Maṭālib al-ʿāliya* and in *Mafātīḥ al-ghayb*. The point is significant, since it has been suggested that Rāzī's actual views are articulated in these latter works. However, it is clear that Rāzī's methodology in the *Maṭālib*, for example, includes *kashf* (which is not a source in the *Mulakhkhaṣ* and the *Mabāhith*). Moreover, such works of philosophical theology focus on central theological problems, and do not aim to set out a systematic frame of inquiry as we find in the *Mulakhkhaṣ* and the *Mabāhith*. We find no references to the actual concepts (e.g., the nature of substances, motion, hylomorphic analysis, etc.) that he develops more deeply in the *Mulakhkhaṣ* and the *Mabāhith*. The *Mulakhkhaṣ* and the *Mabāhith* can be viewed as setting out his 'philosophical worldview' (as discussed in Part 3 below), from which he explores deeper metaphysical and theological doctrines in a more contingent and subjective manner. On the role of mystical knowledge, see Damien Janos, "Intuition, Intellection, and Mystical Knowledge: Delineating Fakhr al-Dīn al-Rāzī's Cognitive Theories," in *Islam and Rationality: The Impact of al-Ghazālī*, ed. by Frank Griffel (Boston: Brill, 2016), 189–228. On his indirect realist epistemology, see Bilal Ibrahim, "Faḥr al-Dīn al-Rāzī, Ibn al-Hayṭam and Aristotelian Science: Essentialism versus Phenomenalism in Post-Classical Islamic Thought," *Oriens* 41(2013): 394–402.

provides a preliminary survey of the reception of Rāzī's attributive view (and anti-hylomorphism) in postclassical works of *kalām*.

## 1 The Binary World: *Kalām* Atomism versus *Falsafa* Hylomorphism

I begin with an overview of central differences between classical *kalām* atomism and the form-matter ontology of the Peripatetic *falsafa*, including Avicenna. A central problem for our purposes concerns the status of composite entities. In the *kalām* view, a composite is any entity that is not an indivisible atom. Here it is of central importance that however one might distinguish between simple and complex entities in classical Ash'arite *kalām*, complex entities, strictly speaking, *do not exist*. Though the point often remains implicit, as Ayman Shihadeh has shown, classical Ash'arites would bite the ontological bullet of *kalām* indivisibilism, explicitly affirming the fictive nature of our linguistic references to complex entities. They hold, for example, that the expression 'this human' refers only fictively or figuratively to a singular entity or unity (i.e., anything beyond a collection of atoms).<sup>10</sup> I return to the details of this view shortly.

The Peripatetic tradition of *falsafa*, by contrast, presents a view of the cosmos as populated by various kinds of bodies (*ajsām*) or "substances", from the four elements to living beings. Their analysis of the world is grounded in Aristotelian hylomorphism, which views material substances as composites of form and matter.<sup>11</sup> We can label this view as a kind of 'substance pluralism,' since there are distinct kinds of material substances, i.e. ontologically basic wholes or entities.<sup>12</sup> The view conflicts with 'substance monism,' which can be attributed to Aristotle's Presocratic predecessors (e.g., Thales, Anaximenes).<sup>13</sup>

10 Summarizing his teacher's view, Rāzī's father, Ḍiyā' al-Dīn al-Makkī (d. 1163–4), states: "[Human] is conventionally one, not one in reality." To be sure, some would state that it is perfectly truthful to state, "This human is knowers,' although it contravenes Arabic linguistic convention. An indivisibilist thesis could hardly be expressed in stronger terms. See Ayman Shihadeh, "Classical Ash'ari Anthropology: Body, Life and Spirit," *The Muslim World* (2012): 433–477, esp. 458–61.

11 The Aristotelian analysis departs from *kalām* on the following central principles: that matter is continuous (including the rejection of indivisible atoms and void), that motion and change is continuous (with a question about substantial change), and that generation *ex nihilo* is impossible. Rāzī's dispute with hylomorphism with respect to empirical objects will not center on these points.

12 Below, I return to the overarching substance pluralism of the Peripatetic view of five primary kinds of substances: form, matter, body, soul and intellect.

13 This glosses over many critical details, including the point that the Presocratic substance

The monists hold that there is one underlying substance, e.g. water or air, from which all perceptible things are produced. On this view, at least as Rāzī understands it, Aristotle's predecessors see natural things as produced solely through *accidental* change that occurs to an underlying substance (for example, water undergoes condensation or rarefaction to produce other elements and natural entities). Rāzī refers to these thinkers as the “deniers of generation and corruption,” because the primary, underlying substance in their ontology persists through change, that is, true substances do not come to be or perish. By contrast, Aristotle asserts not only the existence of multiple kinds or species of substances but also that individual substances come to be and perish. To be sure, Aristotle introduces form and matter in the *Physics* to ontologically ground his distinction between the two fundamental kinds of change in natural reality: substantial change (i.e. generation and corruption) and accidental change (in quality, quantity, and place). For example, the birth or death of Socrates is a case of substantial change since an independent entity simply comes to be or perishes. By contrast, in cases of accidental change, say, when Socrates turns *from* pale *to* tanned, a substance is not generated or corrupted (a pale man did not die, nor was a tanned man born). Rather, Socrates remains Socrates through the process of change; he simply acquires or loses an attribute. As Rāzī will argue, this distinction threatens to collapse, as substantial change itself requires underlying matter and can thus be assimilated to accidental change. To shore up this distinction, Aristotle advances a more robusthylomorphism grounded in the notions of potentiality and actuality.<sup>14</sup> Form makes that which potentially exists exist in actuality.<sup>15</sup> In contrast to a substrate that exists prior or posterior to the acquisition of an accident, the *matter* of a hylomorphic substance exists only potentially without its form. Here, the hard distinction in Aristotelian ontology between *natural* things,

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monists were most likely not true monists, that is, their original, underlying substance need not persist through change. Moreover, the Presocratics probably did not view underlying matter as a substance in the sense found in Plato and Aristotle, but as powers of some kind. Finally, Presocratic monism was taken by Aristotle to imply nominalism or existence monism. See Jonathan Barnes, *The Presocratic Philosophers* (New York: Routledge, 1982), 7–8, 29–36.

- 14 This is not to imply a developmental account of Aristotle's view. See Shields' apt summary of the move from a thin hylomorphism to a more metaphysical theory in *Aristotle* (New York: Routledge, 2014), 60–73. Avicenna provides an even more robust hylomorphism that prioritizes the causal role of forms, as discussed below.
- 15 Otherwise put, the relation between form and matter is necessary or essential, in contrast to the accident-substance relation. Rāzī states that “[t]he co-entailment (*talāzum*) between matter and form is essential (*dhātīyya*)” (*Mabāhith*, 2, 61).

particularly living things as paradigmatic substances, and artifacts (or, more broadly, empirical compounds) will be problematized by Rāzī.<sup>16</sup>

Let us now return to relevant details of *kalām* ontology. Classical Ash'arite ontology can be viewed as a kind of substance monism, since atoms, though numerically multiple, are the only true independent entities.<sup>17</sup> As noted, bodies are viewed as being composite without any ontological unity or cohesion. To be sure, according to the Ash'arites, 'body' (*jism*, *jirm*) is a technical term that signifies two atoms that are directly contiguous (i.e. without any intervening space).<sup>18</sup> A body cannot be said to be space-occupying in itself. According to one interpretation, beyond being contiguous, a body is two atoms that possess, individually, the attribute of adhesion or combination (*ta'liḥ*, *ijtimā'*). Such accidents of composition inhere in each atom of the pair, a point based on the view that accidents cannot inhere in more than a single atom. The view follows from the point that body is not space-occupying and thus not a true substrate for attribute-inherence. As the Ash'arites stress, even if the ordinary usage of the Arabic term *jism* refers to the continuous, corporeal objects that we perceive, the strict sense or the "ontologically designative" use (*ḥaqīqātan*) refers to two adjacent or adjoined atoms.<sup>19</sup> Given the above principles, the implica-

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- 16 Avicenna maintains a sharp distinction between artifactual compounds and natural substances. Regarding Antiphon's objection that it is matter and not form that is nature, he states, "as if [Antiphon] had not distinguished between the artificial form and nature. In fact, he did not even distinguish between what is accidental and the form ..." (*The Physics of the Healing*, ed. and transl. by Jon McGinnis (Provo, UT: Brigham Young University Press, 2009), 1, 48). See the discussion of alchemical compounds below.
- 17 Richard Frank aptly observes, ("The Ash'arite Ontology: I. Primary Entities," *Arabic Sciences and Philosophy* 9 [1999]: 163–201, esp. 199–200): "In the universe of created beings there are only monadic existences. Nothing is indefinite, undetermined, or unlimited. There are only discrete quanta of existence, finite in number and in every respect." See also Frank, *Beings and Their Attributes: The Teaching of the Basrian School of the Mu'tazila in the Classical Period* (Albany: State University of New York Press, 1978), 39–40; and Rāzī, *Mabāḥith*, 2, 15–19.
- 18 Frank shows that the Ash'arites were interested in distinguishing a technical sense of 'body' from its ordinary use in which it refers to common corporeal objects, which we (falsely or figuratively) take to be singular entities. See Richard Frank, "Bodies and Atoms: The Ash'arite Analysis," in *Islamic Theology and Philosophy*, ed. by M. Marmura (Albany, NY: State University of New York Press, 1984), 39–53. Cf. Sabra, "Kalām Atomism," 222–35.
- 19 Frank delineates two positions here, although the difference between them is immaterial to our discussion: "*jism*, which is normally rendered by 'body' is not taken to describe or name the corporeal objects we ordinarily call 'bodies;' it is taken, rather, by one analysis to describe the atom when it is contiguous to another atom or, by an alternative analysis, to designate or describe two (and not more than two) atoms that are immediately adjacent or contiguous to one another" ("Bodies and Atoms," 53). Note that "ontologically designative" is Frank's apt term for *ḥaqīqātan* in this context (see "Bodies and Atoms," 47–50).



tion is that 'body' refers to a fictional entity that reduces to two atoms and to accidents that inhere in the atoms individually. As noted, this indeed is what some will explicitly hold.<sup>20</sup> As one author states, 'body' is used in a similar way as 'long' is used to describe atoms placed length-wise.<sup>21</sup> In short, 'body', in its technical or non-technical usage, fails to refer to any real object beyond the underlying, discrete ontology of atoms and accidents.

In contrast to the Ash'arites, the Mu'tazilites held that composition is a single accident that inheres in two atoms.<sup>22</sup> Moreover, the Basrians develop a more complex ontology, in which, for example, the attribute of 'life' gives a certain unity to a complex entity, which possesses the requisite 'structure' (*binya*).<sup>23</sup> Though this view attempts to account for structure and complexes by binding atoms in certain relations, the Mu'tazilites still consider atoms as the fundamental entities and view animate or inanimate complexes as "essentially a conglomerate."<sup>24</sup>

Before turning to Rāzī's analysis of Aristotle's view of substance and motion conducted in Part I of Book II of the *Mabāḥith* and the *Mulakkhaṣ*, which concerns "accidents" (*a'rāḍ*), I conclude this section with a note on Part II of Book II on substances and, specifically, the "substantivity of bodies" (*tajawhur al-ajsām*).<sup>25</sup> The analysis moves from "body" (*al-jism*), i.e. absolute or quality-

20 Especially important in this regard is Ayman Shihadeh's analysis of how Ash'arites, operating between the time of al-Juwaynī (d. 1085) and Rāzī, expressly pursued a strong reductionist program with regard to composite entities, including 'human' and 'soul.' For these thinkers, the term 'human' is viewed as referring only figuratively to a single entity but is ontologically (*taḥqīq*) multiple entities. See Shihadeh, "Classical Ash'ari Anthropology."

21 Frank, "Bodies and Atoms," 48–9.

22 See Frank, *Beings and Their Attributes*, 103–4; and Alnoor Dhanani, *The Physical Theory of Kalām: Atoms, Space, and Void in Basrian Mu'tazilī Cosmology* (Leiden: Brill, 1994), 148–59. The position was sometimes attributed to al-Ash'arī himself; see Frank, "Bodies and Atoms," 46.

23 Frank, *Beings and Their Attributes*, 39–57, 107–8. Frank states: "it is by virtue of the accident of life in each part (*guz* = atom) of the living that the whole becomes ontologically a single being" (107).

24 Frank, *Beings and Their Attributes*, 39–46.

25 Avicenna entitles the first *namṭ* of *al-Ishārāt*, '*Tajawhur al-ajsām*'. In his commentary, Rāzī clarifies that *tajawhur* means "a thing's becoming a substance", not in the sense of how a thing becomes a substance in the strict sense (i.e., "something not *in* a subject"), but in the sense of what constitutes its essence, i.e., "the essence of body with respect to its constituents" (e.g., form and matter versus indivisible atoms). Rāzī states that on both the philosophers' view, where substance is a genus of body, and on his own view, where substance is a concomitant attribute of a thing, 'body' is a substance and does not *become* a substance. The distinction, to my mind, is an important one in thinking about how Rāzī analyzes physical reality and how his substance-plus-accident view contrasts with

less body in chapter one (*al-bāb al-awwal*) of Part II, to “simple body” (*al-jism al-basīt*) in chapter two, which concerns the four elements and celestial matter.<sup>26</sup> In the following, I argue that Rāzī distinguishes between the analysis of “body”, which I label *Body 1*, from the analysis of higher-order, complex bodies, beginning with the simple, sensible elements in chapter two, which I label *Body 2*. The upshot of this distinction is that Rāzī limits the question of atomism versus hylomorphism to a question focusing on the *constituents* of *Body 1*. More precisely, Rāzī sees the question as regarding the (in)divisibility of *Body 1*, i.e. physical magnitude or three-dimensional extension. As argued below, Rāzī thinks that an analysis of *Body 2* can effectively be conducted independently of the question of the indivisibility of *Body 1*. In other words, one need not first assert a position on the ultimate indivisibility of physical magnitude to analyze what kinds of sensible bodies exist and what their natures and properties are. This, I propose, provides a constructive *philosophical* framework for what *kalām* writers, like Taftāzānī, characterize as Rāzī’s *tawaqquf* or reserved judgment on the problem. Here, a few points can be highlighted regarding Avicenna’s approach.

First, in Avicenna’s system, *Body 1* corresponds to body as a composite of corporeal form (*al-ṣūra al-jismiyya*) and prime matter, and is one of the five genera of substances (i.e., *body*, form, matter, soul, and intellect).<sup>27</sup> We can call

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form-matter composites. The point is related to Rāzī’s discussion of whether substances and substantial forms are subject to motion, as discussed below. Avicenna/Rāzī, *Sharḥ al-Ishārāt wa-l-tanbihāt*, ed. ‘Alī Riḍā Najafzāda (Tehran: Anjuman-i Āthār va Mafākhir-i Farhangī, 1384 [2005 or 2006]), 2, 3–4.

26 Rāzī proceeds to examine more complex, sensible bodies, including mixtures (chapter three) and inanimate things (chapter four). It should be noted that in chapter one Rāzī uses ‘body’ (*al-jism*) and, sometimes, ‘simple body’ (*al-jism al-basīt*) to refer to absolute or qualityless body, i.e., that which is “long, broad, and deep” or “three-dimensional extension” (*miqdār*). However, he also uses *al-jism al-basīt* to refer to the simple elements and celestial matter, i.e., bodies with sensible qualities. The two are, of course, distinct in Rāzī’s analysis, as clarified below. In the *Mabāḥith* and *Mulakkhḥaṣ*, Rāzī addresses definitional issues regarding substance (particularly with relation to the *falāsifa*’s view of form-matter composites and genus-differentia dependency), which, although important to the following, will be only indirectly addressed below. See for example Rāzī, *al-Mabāḥith al-mashriqiyya fi ‘ilm al-ilāhiyyāt wa-l-ṭabī‘iyyāt*, ed. by Muḥammad M. al-Baghdādī (Qum: Intishārāt al-dhawī al-qurbā, 1428/[2007]), 1, 237–48.

27 The following focuses on the species of form-matter composites that fall under the genus of ‘body’; I set aside implications of the overarching substance pluralism of the five genera of substance. See Avicenna, *The Metaphysics of the Healing*, ed. and transl. by Michael E. Marmura (Provo, UT: Brigham Young University Press, 2005), 48; 49–57. For Avicenna’s definition of substance, see Andreas Lammer, *The Elements of Avicenna’s Physics: Greek Sources and Arabic Innovations* (Berlin: Walter de Gruyter, 2018), 114–20.

this *Absolute Body*, which concerns the ultimate divisibility of physical reality.<sup>28</sup> What is of significance is that Avicenna's Absolute Body is a form-matter substance that is ontologically prior to the simple elements and other corporeal substances.<sup>29</sup> In other words, Avicenna's system adds a form-matter layer that is rather unique with respect to earlier Peripatetics and interpreters of Aristotle.<sup>30</sup> Here, two points can be highlighted with respect to Rāzī.

First, despite certain misinterpretations of his approach, Rāzī's rejection of hylomorphism in the *Mabāḥith* and *Mulakhkhaṣ* is rather definitive.<sup>31</sup> He

28 Avicenna's analysis presumes the refutation of atomism conducted in his *Physics*. Avicenna, *Metaphysics*, 52. On the other hand, absolute body as corporeal form and matter is proven in his *Metaphysics* and assumed as a principle in *Physics*; see Lammer, *Elements*, 122–54.

29 Avicenna states, "The clarification of this is that, if corporeality differs from another corporeality, this would be either because this [corporeality instance] is hot, and that one cold, or this has a celestial nature or that a terrestrial nature ... But if another form [e.g. the species-form] is added to corporeality, then the combination of that form—which is thought to be a differentia—and corporeality would not be [i.e. constitute] corporeality. Rather, corporeality would be one of the two that obtains in itself [and] is actualized." (*Metaphysics*, 55; with modification). Avicenna's point seems to be that corporeality is not constituted of (indeterminate) corporeality (as matter) plus the species-form of the elements. Rather, Absolute Body *is* corporeality (though indeterminate in important senses) and is an ontological layer prior to the constitution of elemental substances. Here, Avicenna is addressing earlier commentators, who do not posit an absolute body or indeterminate extension prior to the elemental bodies, as discussed below.

30 In the "traditional theory" of the late-antique Greek commentators, Aristotle asserts a formless, incorporeal matter as the "first subject", i.e. prime matter. Prime matter combines with quantity (or three-dimensions) to form unqualified extension or absolute body as the "second subject". Thereafter, the four elements constitute a third layer. See Lammer, *Elements*, 139–43.

31 For example, Adi Setia states, "[Rāzī in the *Mabāḥith*] expresses his skepticism of hylomorphism, even though he does not seem to have rejected it outright as he does atomism." See Setia, "Atomism and Hylomorphism in the *Kalām* of Fakhr al-Dīn al-Rāzī: A Preliminary Survey of the *Maṭālib al-Ālīyyah*." *Islam & Science* 4 (2006), 116–117. The tendency to draw on the *Maṭālib* to elucidate Rāzī's philosophical views in the *Mabāḥith* and *Mulakhkhaṣ* is highly problematic for the reasons noted above. Relying heavily on the *Maṭālib*, Peter Adamson's recent findings suggest that Rāzī takes a tentative (Platonist) stance on foundational ontological questions, including time, place, and void. I see Rāzī's position on the latter problems in the *Mabāḥith* and *Mulakhkhaṣ* as parallel to his analysis of Body 1, i.e., they concern the analysis of the constituents or fundamental make-up of the world, which is beyond demonstrative, rational reach. This does not preclude an analysis of higher-order or empirical reality. The aims of the *Maṭālib*—which seems to be at once tentative, reliant on extra-rational sources, and theological—make Adamson's general conclusions problematic. Rāzī cannot be read as a *philosophical* platonist in any meaningful manner. Rather, I see Rāzī's analysis in the *Maṭālib* as an aesthetic and theological expansion of the extremely short Book III on theology (*Ilāhīyyāt*) of the *Mabāḥith* and *Mulakhkhaṣ*;

roundly rejects hylomorphism throughout the *Mulakkhkhaṣ* and the *Mabāḥith*.<sup>32</sup> This is quite clear with respect to the analysis of Body 1. For example, Rāzī states, “[The corporeal form is] a thing that is neither perceptible nor known immediately (*darūratān*), for that which is known and perceived immediately are these magnitudes and dimensions. [...] No proof has been set out, in my view, that body is composed of matter and form, so of course we do not assert it.”<sup>33</sup> For epistemic and ontological reasons, Rāzī reiterates his rejection of form and matter as constituents of Body 1 throughout Part II.<sup>34</sup> In the present context, it is worth highlighting that a central point underscored in Rāzī’s critique of Avicenna’s theory is that it concerns the *fundamental* divisibility of corporeal reality and not simply the ordinary or perceptible division of empirical things.<sup>35</sup> As for Body 2, we will see that Rāzī finds the hylomorphic analysis of composite, sensible substances problematic as well. His ontological reasons for rejecting the latter are explored below.

Second, it is notable that a central problem that Rāzī identifies with respect to Avicenna’s analysis of Body 1 is that it concerns the imperceptible con-

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but that is a discussion for another time. See, most recently, Adamson, “The Existence of Time in Faḥr al-Dīn al-Rāzī’s *al-Maṭālīb al-‘ālīya*,” in *The Arabic, Hebrew and Latin Reception of Avicenna’s Physics and Cosmology*, ed. D.N. Hasse and A. Bertolacci (Berlin: Walter de Gruyter, 2018), 65–99.

32 Eṣref Altaṣ states, “In all of his works, al-Rāzī rejects any theory which proposes that the body is composed of matter and form ...” (“An Analysis and Editio Princeps”, 102). Altaṣ seems to mean specifically the analysis of body as qualityless extension.

33 Rāzī, *Mabāḥith*, 2, 52.

34 I discuss aspects of the ontological reasons Rāzī provides below. The following are some explicit statements of rejection focusing on epistemic reason in Book II of the *Mabāḥith*, 2, 14 (“as for us, we do not hold to the composition of body of matter and form, so this puzzle does not address us”); 2, 15; 2, 52 (“according to us, no demonstrative proof has been expounded that body is composed of matter and form”); and 2, 53.

35 As such, Rāzī states that Avicenna’s position requires the prior refutation not only of the *kalām* view of the indivisible part (where no continuous magnitude or body exists whatsoever in physical reality) but the refutation of (Democritean) atomism as well, since, in the latter view, atoms possess “real continuity”. Rāzī holds that ordinary division is explained with respect to the accidental unity and magnitudes of empirical composites and one need not posit an ontological layer of Absolute Body (*Mabāḥith*, 2, 46–47). See also Rāzī, *al-Mulakkhkhaṣ fī l-ḥikma wa-l-mantiq*, MS Berlin Staatsbibliothek, Or. Oct. 629, fol. 59<sup>b</sup>–60<sup>a</sup>; 119<sup>b</sup>–120<sup>a</sup>. Rāzī has much to say with respect to what Avicenna’s *indeterminate* tri-dimensional extension is and whether its “determinability” and divisibility requires the positing of corporeal form and prime matter. His full argument cannot be treated here. On Avicenna’s view, see Lammer, *Elements*, 122–54. On the prior history of debate regarding Avicenna’s view, see Ayman Shihadeh, “Avicenna’s Corporeal Form and Proof of Prime Matter in Twelfth-Century Critical Philosophy: Abū l-Barakāt, al-Mas‘ūdī and al-Rāzī,” *Oriens* 42 (2014): 364–96.

stituents of what is otherwise “immediately” known, i.e. body as three-dimensional extension. The view that Rāzī endorses as his own in the *Mabāḥith* and the *Mulakkhkhaṣ* is that body is magnitude or three-dimensional extension along with immediately related properties.<sup>36</sup> However, it is significant that Rāzī parses the point rather sharply. That is, his own view here is not that Body 1, as extension, is the *ultimate* ontological subject or corporeal substance, such that it has been proven to possess no further underlying constituents (or genus and differentia).<sup>37</sup> Rather, Body 1 is posited by Rāzī as the basic empirical object of analysis and subject of attribution in his system.<sup>38</sup> As such, Body 1 or three-dimensional extension and space-location (*tahayyuz*) will serve as the explanatorily (rather than ontologically) basic subject for his subsequent analysis of composite, empirical substances (i.e. Body 2) in chapter two of Part 2. This reading of the *Mabāḥith* and *Mulakkhkhaṣ* helps us to understand Rāzī’s

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- 36 In the conclusion to the first section of the first chapter of Part II, Rāzī states, “Since we have not apprehended the reality of those constituents [i.e. corporeal form and matter as the constituents of body], we of course define body in virtue of [extension’s] effects and concomitants ... We have clarified [in Part I of Book II] that substance is not predicated of what falls under it as a genus, so it is not necessary that body is composed of genus and differentia and, also, a proof has not indicated that [body] is composed of matter and form. Hence, body [according to my view] is a simple substance that can only be defined with respect to its concomitants and effects” (*Mabāḥith*, 2, 15). Regarding the necessary concomitants of extension, Rāzī seems to have in mind the kind of analysis of space-location conducted in classical *kalām* but generalized to apply to extension. The point is indicated in the conclusion to his treatise on form and matter; see Altaç, “Fakhr al-Dīn al-Rāzī’s Epistle on Al-Hayūlā,” 107. There are important ambiguities in Rāzī’s view that cannot be clarified here.
- 37 For example, after noting that a proof has not been established that body is composed of form and matter, Rāzī asks, “But is there an argument that *disproves* it [i.e. that body is composed of form and matter]?” (*Mabāḥith*, 2, 52). He says we will discuss that in the coming chapters. As highlighted below, regarding Body 2, Rāzī does not claim that form and matter is disproven but that his attributive view is “closer to the truth”.
- 38 It is relevant to note here that Rāzī is aware of the *kalām* view and definition of body, as discussed above, and that it entails the wholesale rejection of magnitude and extension in the physical world (which differs from Democritean atomism). As such, his endorsement of the minimal notion of body as (empirical) extension should be viewed as departing from the approach of classical *kalām*. In theory, Rāzī can consistently endorse atomism with respect to Body 1, while endorsing an empirical analysis of higher-order composites, which possess perceptible, rather than metaphysical, constituents and properties. He states, “With respect to all that we have mentioned in terms of the disagreement obtaining between Democritus and the philosophers [i.e. the Peripatetic hyломorphists], agreement obtains between him and the *mutakallimūn*. But [Democritus] differs from the [mutakallimūn] in another respect, for the *mutakallimūn* consider their part [i.e., atom] other than ‘body’ whereas he makes [the atom] a body susceptible to division in estimation” (*Mabāḥith*, 2, 18).

own, positive analysis of the four elements and animate beings, which rejects hylomorphism but asserts of such composite substances a certain reality, as seen below. In other words, Rāzī's wholesale rejection of hylomorphism need not commit him to the totalizing and reductive atomism of classical *kalām*. The following outlines the alternative, 'attributive' analysis he proposes.

To be sure, postclassical works of *kalām*, following the framework of Rāzī's *Mabāḥith* and *Mulakhkhaṣ*, devote a great deal of space to the analysis of a comprehensive spectrum of composite sensible substances. If they are simply atomists in the style of classical *kalām*, the analysis makes little sense, as all such things are fictive, extensionless objects. Moreover, it is clear that postclassical Ash'arite authors problematize the hylomorphic analysis of composite substances, drawing primarily on Rāzī's texts and themes, as discussed below. It seems, then, that neither the hylomorphism of *falsafa* nor the atomism of classical *kalām* provides a satisfactory frame of analysis in postclassical works. The following suggests that, drawing on Rāzī's approach, the *mutakallimūn* develop conceptual distinctions, including the attributive analysis of perceptible bodies, that allow them to conduct a more systematic analysis of physical reality.

## 2 Rāzī on Aristotle and Hylomorphism

In this section, I focus on several critical points that Rāzī raises against Aristotle and hylomorphism, before turning to Rāzī's positive views in Part 3. Part 2 and Part 3 trace a long arch of Rāzī's arguments developed from Book I through Part I and II of Book II. Rāzī devotes Book I of the *Mulakhkhaṣ* and the *Mabāḥith* to "general things" (*al-umūr al-āmma*) and divides Book II into "accidents" (Part I) and "substances" (Part II), as noted above. As Eichner has shown, this division would provide an organizing framework for postclassical works of *kalām*.<sup>39</sup> The discussion begins with Rāzī's general analysis of simple and composite essences in Book I and then turns to his analysis of Aristotle's view of form and matter in his chapter on motion in Part I of Book II.

39 Heidrun Eichner, *The Post-Avicennian Philosophical Tradition and Islamic Orthodoxy. Philosophical and Theological Summae in Context* (Habilitationsschrift, Martin-Luther-Universität, Halle-Wittenberg, 2009), 351–503. In contrast to Avicenna's *Ishārāt*, and works modelled on the latter, the *Mabāḥith* and *Mulakhkhaṣ* have a lengthy Part 1 on accidents preceding the analysis of substances in Part 2. It is in this section that central questions concerning motion, quantity, causation, and so forth are discussed. Cf. Jon McGinnis, "Changing Motion: The Place (and Misplace) of Avicenna's Theory of Motion in the Post-Classical Islamic World," in *The Arabic, Hebrew and Latin Reception of Avicenna's Physics and Cosmology*, ed. D.N. Hasse and A. Bertolacci (Berlin: De Gruyter, 2018), 7–24.

Rāzī's analysis of essence in Book I spans several topics, including various chapters on essence, mereology, and unity. One way of viewing Book I is as a summary or restatement of Avicenna's approach to primary concepts in the *Metaphysics* of *al-Shifā'*.<sup>40</sup> Alternatively, Rāzī's discussion in this section might be understood as developing a more general analysis of primary concepts than that found in Avicenna's works, which tends to push towards the latter's own Aristotelian and Peripatetic analysis.<sup>41</sup> In the latter reading, the concepts and distinctions in Book I are developed *in order to* raise relevant aporias and to pursue alternative readings of primary concepts. The following analysis supports the latter reading.

In his section on essence, Rāzī begins his analysis of essence with a discussion of what distinguishes an essence from its concomitants.<sup>42</sup> He then turns in the second section of the chapter to the division of simples (*al-basā'it*) and complexes (*al-murakkabāt*):

An essence is either composite or simple. The composite is that whose reality obtains by the composition of many things [i.e., more than one thing], and a simple is that which is other than that. It is necessary to affirm a simple essence, otherwise all essences will be composed of infinite parts in actuality. As such, there must be a simple, since for every plurality, be it finite or infinite, the unit exists in it.<sup>43</sup>

40 As discussed below, his discussion of essence in chapter two of Book I draws on (and responds to) Avicenna's Book 5 of the *Metaphysics*. Eichner, *The Post-Avicennian Philosophical Tradition*, 49: "al-Rāzī develops his conception of the *al-umūr al-amma* as being made up from two different sets immediately out of Ibn Sīnā's discussion of the subject matter of *Ilāhiyyāt*."

41 As Eichner points out, in addition to the substantial departures from Avicenna, there are additional topics, such as whether essences are caused (*maj'ūla*), whether the nonexistent is a thing, and the mental existent, which Avicenna either does not treat at all or treats only indirectly. As Lammer suggests regarding the *Physics*, Avicenna's aim is to instruct by laying out what the latter has already proven (in the *Metaphysics*), i.e. his aim is "to teach us the truth" rather than to provide an inquiry from first principles or ground up. This contrasts with Aristotle's approach in the *Physics*. See Lammer, *The Elements*, 81–109. The view raises questions regarding Avicenna's engagement with his predecessors, including his extensive responses to the Presocratics.

42 This is a summary of Avicenna's Book 5.1. Though the details will not concern us, in brief, Rāzī focuses on the logical distinction between a simple denial and a metathetic affirmation of concomitant attributes of an essence, as implied in Avicenna's account. Rāzī affirms this point but will depart on its relation to form-matter analysis in following sections, as shown below.

43 Rāzī, *Mabāhith*, 1, 142.

The above provides a very broad definition of simple and composite essences. Thus far, Rāzī makes no explicit reference to any specific ontology. The definition of simple and composite essences seems to remain general and inclusive of differing ontologies, including hylomorphism and atomism. However, as Rāzī proceeds, the analysis becomes more and more specific, addressing views of specific kinds of universals (e.g. genus and differentia) and their relation to ontological parts (e.g. matter and form). In the immediately following sections, Rāzī focuses on composition (*tarkīb*) and the relation between simples and composite essences. In the fifth section, on how simples combine to form a composite essence, he begins with the trivial example of ‘human-plus-stone,’ “from which a unified essence fails to obtain since one is not connected with the other.”<sup>44</sup> He then considers medicinal paste (*al-maʿjūn*), which gives rise to certain effects (*āthār*) through a combination of material parts and a paste-form (*ṣūra maʿjūniyya*). In the *Mulakhkhaṣ*, his examples include 10 composed of 1’s, an army of individuals, and a town of houses.<sup>45</sup> The analysis introduces a thin notion of matter and form, the latter of which he often refers to as the composing structure (*al-hayʾa al-ijtimāʾiyya*).<sup>46</sup> I return to aspects of these sections in Part 4 below, where postclassical thinkers offer a variety of readings.<sup>47</sup> To this point, the analysis establishes a general baseline regarding the composition of essences, namely that the parts of a (real) composite entity must, in some way or other, be (non-circularly) interdependent.<sup>48</sup> As evident in the subsequent discussions of genus and differentia, Rāzī is well aware that this is not the robust hylomorphism of *falsafa*.

Two chapters later, in the seventh section, Rāzī considers kinds (*aṣnāf*) of composites, which introduces distinctions regarding the relation between genus and differentia, including how general and specific things combine to produce a composite essence.<sup>49</sup> The discussion centers on the predicables of

44 Rāzī, *Mabāḥith*, 1, 147.

45 Rāzī, *Mulakhkhaṣ*, fol. 49<sup>a</sup>.

46 Note that in his analysis of hylomorphism in Book 11, Rāzī never refers to form (*ṣūra*) as *al-hayʾa al-ijtimāʾiyya*. Moreover, when he refers to form and matter in the Peripatetic sense (of body as a composite of form and matter), he often qualifies the point with phrases such as ‘according to those who hold to them’ (Rāzī, *Mabāḥith*, 1, 152; *Mulakhkhaṣ*, fol. 50<sup>a-b</sup>).

47 One might think that Rāzī’s discussion of *composition* of essences necessarily excludes atomism. As we will see below, postclassical thinkers do not make so quick a judgment. An atomist, on their view, can (indeed, *should*) affirm empirical simples or homogenous essences (e.g. water) and essences *composed of* homogenous things (e.g. tree).

48 Regarding the dependency of parts to structure or form, Rāzī states, “What is required is one part to depend on another but not in a circular manner” (*Mabāḥith*, 1, 152).

49 Rāzī, *Mabāḥith*, 1, 149–51.



the Isagoge tradition but concludes with a reference to how composite essences are composed of causes and, specifically, the four Aristotelian causes, including form and matter.<sup>50</sup> He distinguishes between “intelligible” causes or parts, like form and matter with respect to body, and “sensible” parts, like bed composed of wooden parts and an order (*tartīb*). He states that bed is an example of a “real relational” thing (*iqdāfi haqīqī*), in contrast to “the more proximate” (*al-aqrab*) or “the more remote” (*al-ab’ad*), which are mentally relational. In a bed, the wooden parts are real existents (*mawjūdāt haqīqīyya*) but they require the existence of order, which is a part of the bed but is a relational thing. Here, the language remains too brief and general to see what precisely distinguishes a sensible composite from an ‘intelligible,’ form-matter composite, like body.<sup>51</sup> If one stops here in Rāzī’s analysis of essence in the *Mabāḥith*, one would conclude that he broadly endorses hylomorphism and follows Avicenna’s analysis of composite essences.<sup>52</sup> The following sections of the chapter on essence in the *Mabāḥith* clarify that Rāzī strongly opposes a robust view of hylomorphism. To be sure, already in Book I, Rāzī will allude to his more systematic rejection of robust hylomorphism.

Following his introduction of universals and composition, Rāzī focuses on specific interpretations of genus and differentia, particularly Avicenna’s view of their relation to form and matter.<sup>53</sup> In the thirteenth section, Rāzī discusses how genus is “constituted” by differentia, which he states is an important inquiry that deserves attention. He outlines various distinctions relevant to how the differentia (e.g. rationality), as a part of the essence, constitutes and

50 In these sections of the chapter on essence, Rāzī draws from Book 5 of Avicenna’s *Metaphysics*, and perhaps other works, including the *Physics*, *Isagoge*, *Categories* and *Posterior Analytics*. As noted, section one clearly corresponds to Chapter 1 of Book 5 of Avicenna’s *Metaphysics*. Subsequent sections of Rāzī’s chapter however depart often radically from any single text of Avicenna, as is evident below. Rāzī seems to provide a philosophical and interpretive summary of Avicennan and Peripatetic views; but this requires further study.

51 For example, in his case of bed, is it simply that the wooden parts are “real existents” or that they are real *substrates* or substances, where order is a relational accident? And how does this differ from a real form-matter composite?

52 Crucially, in the corresponding section of the *Mulakkhkhaṣ*, Rāzī provides the same examples and states, “This division is based on (*mabnī ‘alā*) the view of Avicenna on the constitution (*taqawwum*) of genera by differentia.” (fol. 50<sup>a</sup>) To be sure, Rāzī often qualifies examples with a robust form-matter or Peripatetic ontology, with such phrases as “according to those who hold to them” or “based on their view”. See, for example, Rāzī, *Mulakkhkhaṣ*, fol. 49<sup>a</sup>, 50<sup>b</sup>; Rāzī, *Mabāḥith*, 1, 152.

53 See 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): 165–87.

is a cause of the existence of the genus (e.g. animality).<sup>54</sup> Though he does not explicitly refer to hylomorphism here, he notes that animality requires prior preparation as the recipient (*qābil*) of the rational soul; that is, animality exists only potentially prior to the reception of the form of rationality.<sup>55</sup> According to Rāzī, the differentia-form is the formal cause of the composite substance (i.e. the species) but *part of the efficient cause* of the genus-matter.<sup>56</sup> Here, I set aside certain details of Avicenna's more complex hylomorphic system, as my interest concerns Rāzī's engagement with the fundamental principles of Aristotelian hylomorphism. In the fourteenth section, Rāzī directly addresses the hylomorphic status of genus and differentia and raises the following question regarding the form-matter analysis of living things:

Since it has been clarified that the genus is in need of [i.e. depends on] the differentia for its existence, it is impossible for the differentia to be in need of the [genus] in virtue of the absurdity of the circularity [this would entail]. Rather, [the differentia] must be independent of [the genus], for everything that inheres (*ḥāll*) in a thing is dependent on the substratum (*maḥall*) [in which it inheres]. Therefore, it is impossible for the differentia that divides the genus and is constitutive of the species to inhere in [the genus]. According to this, there is no problem in making the rational soul the differentia of 'animal' [as the rational soul, on Avicenna's view, is immaterial]. But the problem is in making the faculty of growth (*quwwat al-numuww*) and its like a constitutive differentia of body. The same holds for the *corporeal* animal soul, because these attributes are dependent on substrata, which are bodies, but the substratum is prior in

54 Rāzī more specifically refers to Avicenna's view that the genus as matter refers to the "absolute animal" or "absolute body", which are ontological layers independent of more specific forms and attributes (*Mabāḥith*, 1, 158–9). See McGinnis, "Logic and Science," 171–8.

55 Rāzī, *Mabāḥith*, 1, 158. I cannot fully address Rāzī's analysis of potentiality here. His criticism broadly follow earlier *kalām* rejections of real potentiality in *falsafa*; however, below, it is shown that Rāzī affirms powers and capacities as perceptible or empirical properties inhering in bodies. On the history of the debates concerning potentiality, see Ayman Shihadeh, *Doubts on Avicenna: A Study and Edition of Sharaf al-Dīn al-Mas'ūdī's Commentary on the Ishārāt* (Leiden: Brill, 2016), 111–42.

56 That is, the form of a composite substance is not the formal cause of the composite's matter. This is the correct reading of Avicenna. Rāzī elaborates Avicenna's view of form-matter dependency in Part II of Book II. See Rāzī, *Mabāḥith*, 1, 645; 2, 53–61. On relevant aspects of Avicenna's view, see Olga Lizzini, "The Relation between Form and Matter: Some Brief Observations on the 'Homology Argument' (Ilāhiyyāt, 11.4) and the Deduction of Fluxus," in *Interpreting Avicenna: Science and Philosophy in Medieval Islam*, ed. Jon McGinnis in collaboration with David Reisman (Leiden: Brill, 2004), 175–85.

existence to the inhering [attribute], and it is impossible for that which is prior in existence to a thing to be the effect of that thing. We have discerned responses to that<sup>57</sup> which we will mention in the chapter on the connection of matter to form. Perhaps the truth is to hold that the subject of attribution (*al-mawṣūf*), whether it is the cause or the effect of the attribute (*al-ṣifa*), is the genus and the attribute the differentia, but if we state that, *then the distinction between the division of genus by the differentia and the division of species by the proprium becomes invalid*. We will mention what *our chosen position* is in the chapter on the connection of matter and form.<sup>58</sup>

Here, Rāzī introduces, in a preliminary manner, problems regarding (Avicenna) hylomorphism, which he will address more fully throughout the *Mabāḥith* and *Mulakhkhaṣ*. It bears noting that Rāzī specifies the question to the relation of form and matter in *material* substances, excluding the case of the relation of the immaterial rational soul to human body. That is, Rāzī is interested in how hylomorphic analysis is applied to perceptible, material substances, focusing on the case of living beings, i.e. the paradigmatic substances of Aristotelian ontology. Moreover, the passage focuses on how the form-matter relation, in a robust sense, differs from a substrate-attribute relation. That is, in the case of a bed discussed earlier, the wood as genus exists prior (and posterior) to the bed-form or order, which is the differentia. Here, the wood is not “in need for its existence” on the bed-form. However, the hylomorphism that Rāzī outlines in sections thirteenth and fourteen asserts that the genus as the proper matter of a material composite is dependent (and exists only potentially) without its form, as specified by the differentia. I return to Rāzī’s remarks on his own views in the above passage shortly.

In the corresponding section of the *Mulakhkhaṣ*, Rāzī focuses on a remarkable point. After stating that Avicenna’s view is that the differentia is *necessarily* a cause of the species-part (*hiṣṣat al-nawʿ*) of the genus, he states, “According to me, that is not necessary, because an animal or plant body remains [in existence] *posterior* to the absence of the attributes [e.g., life] in virtue of which that body came to be an animal or plant. If those things were the causes of the existence of that body, that would not be the case due to the impossibility of the persistence of the effect with the absence of its cause.”<sup>59</sup> Here, Rāzī’s

57 That is, responses to Rāzī’s objections on behalf of the *falāsifa*; see the discussion of *Mabāḥith*, 2, 61–4, below.

58 Rāzī, *Mabāḥith*, 1, 161–2.

59 Rāzī, *Mulakhkhaṣ*, fol. 50<sup>b</sup>.

objection corresponds, in effect, to what modern scholars have called a *fundamental problem of hylomorphism* in Aristotle.<sup>60</sup> That is, Rāzī considers the case of the material body or the corpse of a living substance after its death or corruption.<sup>61</sup> In Rāzī's view, as far as we can see, the material constituents of animals and plants exist prior and posterior to their individual existence or life. Rāzī's point is that the analysis of animals and plants need not radically differ from the analysis of ordinary objects, like bed, in which material parts are independent of form. The dependency relation posited in Aristotelian hylomorphism is peculiar in this regard; it is unclear how the composition and dependency relation of form and matter corresponds to our empirical knowledge of things, a problem that Rāzī emphasizes in Part II of Book II.<sup>62</sup> Avicenna's own theory, which has been called a "radical formalism", is undoubtedly Rāzī's immediate target.<sup>63</sup> However, a similar problem will inform his objections to Aristotle, to which I turn shortly below.

Two points can be highlighted from our discussion of Rāzī's chapter on essence thus far. His analysis, from section one to fourteen, illustrates how his book on general concepts in the *Mabāḥith* and *Mulakhkhaṣ* is meant to function: he moves from general definitions of concepts and examples (including

60 Shields states, "Aristotle evidently thinks that a human body is essentially enformed by the soul whose body it is. That is, unlike bronze, a body, the matter of a human being, cannot lose its form, its soul, and remain in existence ... This will seem counterintuitive, insofar as it seems peculiar to speak of a human body as ceasing to exist at the moment of death." Ironically, because of Avicenna's view of the immaterial soul, Rāzī must apply the case to material organisms. It is unclear whether Aristotle applies the analysis to all organisms; but Avicenna and earlier Peripatetics seem to do so. Christopher Shields, "Aristotle's Psychology," in *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), ed. by Edward N. Zalta, URL = <https://plato.stanford.edu/archives/win2016/entries/aristotle-psychoology/>.

61 There are certainly some ambiguities in Rāzī's phrasing, including what the relevant proximate matter is vis-à-vis the substantial form of living beings. That is, does he mean a corpse with flesh and bones or any prior matter? Also, are the relevant attributes life and similar things, as I have suggested, or are they species-forms (e.g., horseness)? Regardless, Rāzī's point regarding the problem of applying hylomorphic analysis to sensible things is clear.

62 Rāzī raises here a more fundamental question than that which Avicenna raises in *Kitāb al-Burhān*, against himself, regarding how 'animal' is a cause of the human being a body. Avicenna responds by affirming the ontological layer of absolute body and absolute animal. Avicenna's point is that absolute body, as matter, only exists potentially without the species-form. Rāzī raises a more foundational point: why must animality be interpreted as a form and not simply as an accident of some prior, existing matter. See McGinnis, "Logic and Science," 171–8.

63 Lizzini connects the strong role of form in Avicenna to the "homology argument" and its relation to emanationism, "The Relation between Form and Matter," 175–185.

essence, genus/differentia and form/matter) to specific claims and disagreements, particularly those advanced by Avicenna and other *falāsifa*. Rāzī points us to the Avicennan view of the relation between the genus and the differentia of an essence, which, according to Rāzī, involves a robust (and problematic) hylomorphism. Note that, in the above passage from the fourteenth section, he refers to his fuller analysis of hylomorphism in Part II of Book II. That is, the above, general analysis serves to introduce central concepts and problems and anticipates fuller discussions in subsequent parts of the *Mabāḥith* and *Mulakhkhaṣ*.

Second, Rāzī does not simply set out received views and problems, but introduces his own voice and “chosen view” on topics. In the conclusion to the above passage of section fourteen, Rāzī states, “Perhaps the truth is to hold that the subject of attribution (*al-mawṣūf*), whether it is the cause or the effect of the attribute (*al-ṣifa*), is the genus and the attribute the differentia.” As we will see, this anticipates Rāzī’s anti-hylomorphic, *attributive* view, which he develops and applies throughout the *Mabāḥith* and *Mulakhkhaṣ*. It is evident that Rāzī’s own view is not an interpretation of Avicenna but is meant as a foundational departure. In the above passage, Rāzī introduces a fundamental *problem* regarding the form-matter relation but then refers to a *solution*, which he takes to be his own chosen view. Even this much strongly suggests that Rāzī is not simply expounding or following Avicennan or Aristotelian views and ontology. But more on this shortly.

As noted, Rāzī refers to a following discussion on form and matter in the fourteenth section. It seems that Rāzī means his better known discussion of Avicenna’s hylomorphic analysis of Absolute Body in Part II of Book II, which assesses various aspects of robust form-matter dependency. However, Rāzī provides important discussions of form and matter in earlier sections of the *Mabāḥith* and *Mulakhkhaṣ*, particularly in Part I of Book II on accidents, which to my knowledge has not been addressed in scholarship. The discussion is of particular significance as Rāzī directly addresses Aristotle and hylomorphism in the context of physics.

It has been thought that Rāzī is unaware that form and matter was introduced by Aristotle. As the following shows, Rāzī not only takes Aristotle to be the progenitor of hylomorphism but seems to be aware of its original context in physics and its relation to Presocratic thinkers. In his extensive chapter on motion in Part I of Book II, Rāzī raises the question of the relation of change to substantial forms in the *Mulakhkhaṣ*.<sup>64</sup> The problem of “substantial change”

64 Rāzī, *Mulakhkhaṣ*, 103a; Rāzī, *Mabāḥith*, 1,701–717.

(*al-ḥaraka al-jawhariyya*) becomes a prominent topic of debate in metaphysics and theology in postclassical Islamic thought, and Rāzī plays a central role in defining the problem.<sup>65</sup> However, this should not obscure the fact that the question Rāzī begins with centers on *Aristotle's* critical distinction between substantial change (or generation and corruption) and accidental change. In a section of his chapter on motion in the *Mulakhkhaṣ*, Rāzī states the following:

[The impossibility of motion applying to] substance according to our view is clear because substance is that which is self-subsisting (*al-qā'im bi-dhāt*) and motion only applies to attributes (*ṣifāt*), as we have specified. However, on Aristotle's view, since he affirms substantial forms (*al-ṣūra al-jawhariyya*), evidence for this is necessary and clarification is needed with respect to two points (*maqāmayn*). [A] The first point is that it is possible for substantial forms to cease to exist with their matter with respect to the [four] elements and the dispute is with those who deny generation and corruption. The [Aristotelian] philosophers (*ḥukamā'*) permit this [i.e. the corruption of substantial forms] only with respect to the four elements but not with respect to the celestial orbs or planets.

[B] Know that since the elements are four, the kinds of generation are twelve, except that if we affirm [only] three of them—namely, earth becoming water, water becoming air, and air becoming fire—the aim has been obtained with respect to all [i.e., all four substances], because this much entails the claim that matter is common to all [four]. They aim to prove that earth turns into fire on the evidence of the mechanics (*ahl al-ḥiyal*). [...] *Know that such [evidence] concerns particular things, which do not exclude various possibilities, so this does not provide a demonstrative result.* We have mentioned those possible alternatives in the *Mabāḥith*. Indeed, what is established there is that bodies are equivalent with respect to corporeality and differ with respect to attributes [i.e., they do not differ with respect to form]. [...] This method [based on the commonality of body] is strong and there are subtle inquiries regarding it that we

65 I return to relevant contextual points of his section on motion in the conclusion to Part 3 below. The analysis of motion and time in the *Mabāḥith* is significantly more extensive, consisting of 72 sections. On Rāzī's problematization of gradual change and his predecessors, see Asad Ahmed, "The Reception of Avicenna's Theory of Motion in the Twelfth Century," *Arabic Sciences and Philosophy*, 26 (2016), 215–43. See, also, McGinnis, "Changing Motion", 7–21.

have mentioned in the *Nihāyat al-ʿuqūl*, but those do not accord with the principles of the *falāsifa*, because they deny generation and corruption.

[C] The second point (*al-maqām al-thānī*) concerns the point that it is not possible for the generation of these forms to occur in a gradual manner. *This job is directed at them, not at us*, and they have sought to prove this by three ways.<sup>66</sup>

Rāzī begins with his own view on substance and body. As is clear from the above and related discussions, what he means by substance being “self-subsisting” is that it is not composed of the two further substantial components of corporeal form and matter. That is, substance is a substrate and is a subject only to attributes. That is, it is not a subject to forms in the sense of Aristotelian matter as a potential, indeterminate underlying thing. Moreover, he affirms what I have proposed above regarding the status of Body 1, namely, that it is the basic ontological or conceptual layer and the subject of sensible properties, including those belonging to the four elements (more on this below).

More significantly, Rāzī directly contrasts his own view with that of Aristotle. That is, his position not only departs from “principles of the *falāsifa*”, as he states in the passage, but from Aristotle’s position on substantial forms and change. Regarding the passage, my focus will be on [A] in the following discussion. However, two general points that Rāzī raises in the following paragraphs of the passage need noting. In [B], Rāzī highlights the demonstrative or epistemic status of the Aristotelian claim regarding the nature of the four elements. He asks how we know whether the change from one element to another (say, from water to air) involves *substantial* change rather than *accidental* change.<sup>67</sup> Again, Rāzī invokes his own solution to the problem, which suggests the latter reading: substances can be viewed as composed of corporeality or Body 1 plus attributes (heat, cold, etc.), rather than matter plus substantial form.<sup>68</sup> He will have significantly more to say about this, as indicated in his reference to the lengthier discussion in the *Mabāḥith* and *Nihāyat al-ʿuqūl*. In [C], Rāzī refers to the question of the generation and corruption of substantial forms. According to Avicenna’s interpretation (which Rāzī takes to be a correct reading of Aristotle’s view), substantial forms do not undergo generation and corruption gradually but ‘all at once,’ in contrast to change in accidents

66 Rāzī, *Mulakhkhaṣ*, fol. 103<sup>a-b</sup>; cf. *Mabāḥith*, 1, 701–7.

67 Rāzī notes that there are theoretically twelve possible permutations (earth to fire, fire to earth, earth to water, water to earth, earth to air, air to earth, fire to water, water to fire, and so forth) but the Aristotelians affirm only three.

68 Note that this precedes his fuller discussion of body and substances in Part II of Book II.

(i.e. alteration).<sup>69</sup> In Part 3, I return to Rāzī's own view of change elucidated in a text immediately following the above passage, which involves a radical relational view of the perception of accidents and accidental change.

In the passage, Rāzī highlights two problems that specifically address Aristotle. In [A], Rāzī asks how we know that elemental change involves *substantial* and not simply *accidental* change. Importantly, Rāzī identifies Aristotle's interlocutors as the "deniers of generation and corruption."<sup>70</sup> Who, precisely, are they? As suggested in Part 1, Rāzī is referring here to the Presocratic philosophers and particularly the substance monists, whose ontology Aristotle opposes in *Physics* 1 with reference to form and matter.<sup>71</sup> In the *Mabāḥith*, Rāzī explicitly identifies the relevant interlocutors as substance or element monists.<sup>72</sup> Elsewhere, Rāzī identifies by name a variety of Presocratic philosophers, including monists such as Thales, Anaximenes, and Heraclitus.<sup>73</sup> I will set aside the details of the discussion for a future study.<sup>74</sup> However, that Rāzī addresses Aristotle's theory of form and matter in the context of the Presocratic monists is significant for two reasons.

First, Rāzī highlights a critical philosophical problem that the Aristotelian hylomorphist must address. That is, Aristotle's monist predecessors believe

69 Jon McGinnis, "On the Moment of Substantial Change: A Vexed Question in the History of Ideas," in *Interpreting Avicenna: Science and Philosophy in Medieval Islam*, ed. Jon McGinnis (Leiden: E.J. Brill, 2004), 42–61. I set aside the important distinction that McGinnis uncovers in Avicenna between 'all at once' and 'in an instant.' I also set aside interpretations of Aristotle's own view.

70 Cf. Rāzī, *Mabāḥith*, 1, 701.

71 In *Physics* (187a13–15), Aristotle states, "The first set [of thinkers] make the underlying body one—either one of the three [i.e., water, air, fire] or something else ... then generate everything else from this, and obtain multiplicity by condensation and rarefaction." See Aristotle, *Physics*, 187a12–192a3. See Rāzī's discussion in the note below.

72 Rāzī states (*Mabāḥith*, 1, 701–2): "The dispute here is with the *deniers of generation and corruption*, for just as some of them reject alteration and accept latency (*kumūn*), others deny latency and accept alteration. And these [i.e., the latter] are those who take *the element to be one*; either fire, from which they generate all the [other] elements by increase in condensation, or earth, from which they generate the rest [of the elements] by increase in rarefaction, or some intermediate [element], from which they generate some by increase in rarefaction and others by increase in condensation. They believe that that element, despite the differences in degrees of rarefaction and condensation, preserves its nature."

73 Rāzī, *al-Riyāḍ al-mūniqa fi ʿarāʾ ahl al-ʿilm*, ed. by Asʿad Jumʿa (Tunisia, [al-Qayrawān]: Kulliyat al-ādāb wa-l-ʿulūm al-insāniyya bi-l-Qayrawān, 2004), 71–82. This approach to dividing the *falāsifa* and ancient schools of thought is not found in Shahrastānī's lengthier work (cf. *al-Milal wa-l-niḥal*, ed. by ʿAbd al-Amīr ʿA. Muḥannā and ʿAlī Ḥ. Fāʿūr (Beirut: Dār al-maʿrifa, 1990), 2, 369–490).

74 Important aspects of Rāzī's approach are examined in Ahmed, "The Reception of Avicenna's Theory of Motion," 215–43.



that all phenomena can be explained with reference to a singular, underlying substance (e.g., fire, earth, water, etc.). The varying attributes and composite entities that we observe in the world are obtained by change (e.g. condensation or rarefaction) that occurs in some primary substance, which itself cannot undergo generation and corruption. That is, the Presocratic monists deny that primary substance, whatever it may be, undergoes generation and corruption. Rather, generation and corruption applies only to the attributes or properties that we observe and is a result of change that occurs *to* the primary substance itself. As such, Rāzī believes that the onus is on Aristotle to prove that when one element changes into another, the change in fact involves substantial change (i.e. generation and corruption, or motion in substantial form) and not simply a change in accident (i.e. alteration). The Presocratic monists, as noted, explain all such change with reference to a single underlying substance.<sup>75</sup>

Rāzī's discussion is part of a larger analysis of the distinction between substantial change and accidental change. The central point that emerges from Rāzī's discussion of motion and substantial form is not that he locates a fatal flaw in Aristotelian hylomorphism—for, as he knows, there is more to say on the matter. Rather, the analysis shows that Rāzī is almost certainly aware of the original context of form and matter in Aristotle's *Physics* and the basic intuitions underlying their introduction.<sup>76</sup> Moreover, he directly contrasts his own view with the Aristotelian view at a fundamental level. In Part 3, I return to Rāzī's discussion of the Aristotelian view of the elements, and specifically the 'fundamentality' of the four elements, in contrast to his own attributive view.

I turn now to Rāzī's preliminary analysis of substance and accidents in the introductory chapter to Book II. The discussion precedes his analysis of motion in Part I; the analysis follows and elaborates on the general concepts and prob-

75 Rāzī raises an incisive problem, for as Christopher Shields states (*Aristotle*, 69): "Nonetheless, when distinguishing the two kinds of change he accused Parmenides of conflating, namely generation and qualitative change, Aristotle committed himself to two irreducibly distinct kinds of change. In fact, though given his concession, one might well wonder why he is entitled to do so. If we think that all change, of whatever kind, involves the acquisition or loss of some form by some matter, then how is there real generation? Why, that is, are we precluded from representing the production of a statue or a human being as an instance of qualitative change rather than as a case of *bona fide* generation?"

76 Whether Rāzī draws directly from Arabic versions of Aristotle's *Physics*, or whether he relies solely on Avicenna, requires investigation. As Janssens has found, the following discussion suggests that Rāzī draws extensively from Avicenna's *Physics* of the *Shifā'*. See Jules Janssens, "Avicennan Elements in Faḥr al-Dīn al-Rāzī's Discussion of Place, Void, and Directions in the *Mabāḥith al-maṣriḳiyya*," in *The Arabic, Hebrew and Latin Reception of Avicenna's Physics and Cosmology*, ed. D.N. Hasse and A. Bertolacci (Berlin: Walter de Gruyter, 2018), 43–63.

lems discussed above in Book 1. In the fifteenth section of the introduction, on whether one thing can be both substance and accident, Rāzī states that the problem applies especially to *substantial forms*. He notes that the established view attributed to Avicenna is that the substantial form cannot be a substance in one respect and an accident in another. He then states that opponents of the former view rely on three arguments to show that a substantial form can be viewed as a substance and as an accident. After raising objections to the three arguments, he states that the following is a “better” argument for the latter position. The discussion is clearly aporetic but points us to important aspects of Rāzī’s positive approach.<sup>77</sup> He states:

[A] If a thing inheres in a thing, then that inhering thing (*al-ḥāll*) has [one] aspect (*ītibār*) insofar as it is *in* that substrate (*maḥall*) and [another] aspect insofar as it is *in* that collection (*majmūʿ*) [i.e. the inhering thing *plus* substrate]. For example, heat has an aspect insofar as it is in the ‘hot thing’ (*al-ḥārr*) and another aspect insofar as it is in a body. As for the aspect of heat being in the hot thing, it is clear that that does not entail accidentality [i.e. of heat to the hot thing] since heat is a part of the hot thing, whereas it is a condition of [being an] accident that it is not a part of the subject (*mawḍūʿ*). As for the aspect of [heat] being in the substrate, then it is either rationally conceivable that there is a substrate that can be *constituted* by that which inheres in it or not [i.e. such a thing is not rationally conceivable].<sup>78</sup> The first is false for two reasons. [...]

[B] What further supports and clarifies that is that we see that if animality (*ḥaywāniyya*) ceases to exist, then its corporeality [i.e. its matter or body] does not cease to exist without that animality. Also, they hold that animality is composed of genus and differentia, the genus being corporeality and the differentia the animal form (*al-ṣūra al-ḥaywāniyya*). And they state that the animal form is constitutive of that body. This is false because *that animal power (al-quwwa al-ḥaywāniyya) inheres in that body in the manner that an accident inheres in its substrate*, so that if that body is in need of the animal form, then the dependency circles unto itself [i.e. is circular]. Thus, how is it rationally conceivable to state that that body

77 Rāzī is clearly addressing the internal disputes among earlier *falāsifa* and commentators. See Benevise, “Fire and Heat,” 237–67.

78 Rāzī sees this argument as more foundational than the second argument that he states they rely upon, which is: “heat is a part of a hot thing and the hot thing is a substance, and so heat is a part of a substance and a part of a substance is a substance, so heat in relation to the hot thing, insofar as it is hot, is a substance but [heat] in relation to the recipient body is an accident” (*Mabāḥith*, 1, 265).

is constituted by that animal form? It is clear from what we have said that the constitution of any substrate by a thing that inheres in it is impossible.<sup>79</sup>

The above passage recalls the discussion in section fourteen of the chapter on essence in Book I, discussed above. Here, Rāzī provides an argument (the details of which I have set aside) against form-matter dependency, where form constitutes, in some way or other, its substrate.<sup>80</sup> Rāzī's own view is, again, expressed in [B] as a substrate-plus-accident view. That is, whatever the attribute might be, the substrate or substance is a "self-subsisting" thing. Here, Rāzī provides two notable examples. The first concerns the relation of hot and body and, the second, the nature of animate powers. In the former, the heat in the 'hot thing' is not accidental to the composite 'body-plus-heat'. This, as we will see, is the model Rāzī will use to interpret the four elements, not as fundamental substances but as empirical bodies. In Rāzī's eyes, a substance-plus-accident can be viewed as producing a new substance. What distinguishes it from arbitrary composites or accidental clusters of matter (e.g. human-plus-stone) seems to be their relation to, and manifestation of, specific, empirical properties. This view, as Rāzī points out elsewhere, violates a central tenet of the *falāsifa's* hylomorphism, since a true substance cannot be constituted of a substance and accident; rather, all true composite substances are constituted of form and matter.<sup>81</sup>

The second example he discusses is the case of a more complex object, namely animal, which he analyzes as 'body-plus-animal-power.' Here, animality is not a substantial form but an attribute of some kind that inheres in body. As he states, "animal power (*al-quwwa al-ḥaywāniyya*) inheres in that body in the manner that an accident inheres in its substrate." Notably, Rāzī sees *attributes* as encompassing a broad category. As we will see, Rāzī views powers as empirical phenomena, more akin to contemporary views of 'capacities' or 'dispositions.' That is, Rāzī neither denies their existence outright nor does he equate powers with forms or natures, as do earlier Peripatetics, including

79 Rāzī, *Mabāḥith*, 1, 266–7. Rāzī provides this as an argument for those who oppose Avicenna's view. That this corresponds to his own view is made clear in the *Mulakhkhaṣ*, fol. 50<sup>b</sup>–51<sup>b</sup>.

80 Again, Rāzī is not suggesting that these preliminary arguments are fatal. Rather, he is outlining the fundamental points or principles of dispute. Indeed, at the end of the passage, he states that the topic requires further investigation and refers us again to his fuller analysis in Part II of Book II. The "rational inconceivability" he claims regarding form and matter should be viewed in this context.

81 Rāzī, *Mabāḥith*, 1, 244–5.

Avicenna.<sup>82</sup> The above, then, provides the basic elements of Rāzī's *attributive* analysis of empirical things. Though I return to details below, it can be noted that at the end of the passage on motion and substantial form in the *Mulakhkhaṣ* discussed above, Rāzī explicitly provides his own view of the relation of substance to attributes and capacities, including living beings.<sup>83</sup> What is significant is that Rāzī's alternative contrasts with earlier approaches, which first set out a specific, fundamental ontology (particularly, at the level of Body 1) on the basis of which the subsequent analysis of physical reality is conducted. In the following, Rāzī will not be providing an alternative insofar as it is a competing, fundamental ontology to the various views he addresses above, from the Greek monists and hylomorphists to *kalām* atomists. Rather, from a general, attributive view, Rāzī develops a conceptual and empiricist frame of inquiry for analyzing higher-order aspects of physical reality. I return to further details of Rāzī's empiricism or indirect realism in the conclusion to Part 3.

In the *Mulakhkhaṣ*, Rāzī provides a more detailed analysis of his position on the relation between substrate and attribute, including cases with multiple and interrelated attributes.<sup>84</sup> A focused analysis and application of these distinctions will more precisely reveal the structure of Rāzī's attributive system. However, in the following, I focus on the more accessible and concrete examples of substance-plus-attribute things in Part II of Book II. In doing so, I focus on the epistemic themes guiding his inquiry, rather than the details of specific arguments, which cannot be fully addressed here.

Regarding Rāzī's attributive analysis, it can be noted that in Book I of the *Mulakhkhaṣ*, regarding the nature of composition in external reality, Rāzī

82 Cristina Cerami, "The *De Caelo et Mundo* of Avicenna's *Kitāb al-Šifā'*: An Overview of Its Structure, Its Goal and its Polemical Background," *Documenti e studi sulla tradizione filosofica medievale* 38 (2017): 273–328; Lammer, *The Elements*, 286–306.

83 After his objection to Aristotle's view of motion in substance, Rāzī raises a question to himself, stating (*Mulakhkhaṣ*, fol. 103<sup>a-b</sup>): "If it is asked: 'What is the status of the question according you?' We say: We have clarified that the meaning of intensification and decrease is the succession of things that differ in essence but are similar according to *sense perception*, and it is not the case that there is something in existence that differs from [i.e. contrasts with] the power of animality in essence and resembles it in sense-memory (*takhayyul*). Since such is the case, no doubt the power of animality and the power of humanity do not admit degrees of change. As for all other [substances], it is not established according to us that motion does not occur to them according to the interpretation we have mentioned." This requires clarification but it is evident that Rāzī's notion of substance is very different from the Aristotelian view.

84 Rāzī, *Mulakhkhaṣ*, fol. 50<sup>a</sup>–51<sup>b</sup>. Rāzī explicitly opposes Avicenna's view of genus and differentia here.

states: “The correct [view] is that there is no meaning to the predicability of a thing but its being an attribute (*ṣifa*) of a [subject].”<sup>85</sup> The point is meant to oppose the Avicennan view of the differentia as an essential, constitutive part of an essence and the nature of *per se* predication.<sup>86</sup> I raise the point for the following discussion in order to contextualize Rāzī’s attributive view. The intuition behind his attributive and substance-plus-accident view, I propose, is best understood as inspired by *kalām* and the tradition of Arabic grammar.<sup>87</sup> That is, its intuitions lie in the substrate-plus-attribute (or *maḥall-plus-ṣifa*) framework of the latter traditions without adopting the reductive analysis of *kalām* atomism. Moreover, Rāzī’s engagement with a broad spectrum of substances and empirical phenomena, within a more systematic and complex logical system, allows him to develop a more comprehensive physics.

Tracking the longer arch of Rāzī’s argument, I turn now to his analysis of substances in Part II of Book II, focusing on his approach to the four elements of Aristotelian cosmology and more complex substances (i.e. Body 2).

### 3 Rāzī on the Four Elements: Empirical versus Hylomorphic Substances

In Part 1 above, we noted that Rāzī begins with the analysis of body as extension (Body 1) in his part on substances, i.e. Part II of Book II of the *Mabāḥith* and the *Mulakhkhaṣ*. He then turns to discussing more complex substances (Body 2), beginning with the four elements and celestial matter in chapter two of Part II. As a preliminary to that latter chapter, in the thirteenth discussion of chapter one, Rāzī discusses the question of “affirming natural forms” (*ithbāt al-ṣuwar al-ṭabīʿiyya*), by which he means the species-forms of the four elements.<sup>88</sup> He begins by stating: “After sharing in corporeality, some bodies

85 Rāzī, *Mulakhkhaṣ*, fol. 50<sup>a</sup>.

86 For Rāzī’s discussion of the Aristotelian view of *per se* predication, see Ibrahim, “Faḥr al-Dīn al-Rāzī, Ibn al-Hayṭam and Aristotelian Science.”

87 I develop this view in a forthcoming work, which focuses on Rāzī’s view that conditional arguments are ‘prior to and stronger than’ the categorical syllogism. I propose that Rāzī’s logic should be viewed primarily as sentential logic in contrast to the ‘term logic’ of Aristotelian syllogistic.

88 In the *Mabāḥith*, Rāzī includes in the final sections of chapter one of Part II summary discussions of elemental form, natural place and elemental shape, which seem to be out of place if chapter one is about Body 1. The sections seem to be preparatory for his discussion of simple bodies in chapter two of Part II.

are receptive of different shapes with ease, which is moisture, while others are receptive to them with resistance, which is dryness, [...] and we have indicated in the chapter on powers that differences in accidents are necessarily in virtue of differences of forms that are located in those bodies.”<sup>89</sup> As is clear, Rāzī begins with Avicenna’s form-matter view of the four elements, but as we will see, he will quickly problematize it.

Rāzī’s cross-reference to his discussion of powers refers to his preceding analysis in Part I of Book II. Two points may be highlighted here without getting into the details of that discussion.<sup>90</sup> First, he summarizes Avicenna’s fourfold division of powers, the centrality of which to Avicenna’s natural philosophy has recently come to scholarly attention.<sup>91</sup> Second, Rāzī notes that according to Avicenna’s doctrine (*madhhab*), inanimate powers include those that are constitutive of their substrate, such as the “form, say, of fire-ness and so forth,” which Rāzī says is called ‘nature’ (*al-ṭabīʿa*).<sup>92</sup> While some identify sensible qualities with forms, Avicenna argues that “it is necessary that these qualities are concomitants and attributes of constitutive forms, and these forms necessitate by nature these qualities.”<sup>93</sup> Rāzī then states that his own view is that powers are those “that *inhere in a simple body*, like fire-ness, and those that are composite, like nutritive and medicinal mixtures.”<sup>94</sup> As noted, for Rāzī, powers are empirical objects that exhibit certain dispositions and capacities. As we will see, he rejects the notion of powers as natures and forms, which is central to Avicenna’s approach.<sup>95</sup> Let us return to his analysis of the elements in Part II.

In the *Mabāḥith*, Rāzī begins the corresponding section by stating that it is customary to discuss the point that specific attributes of bodies (e.g. their quality, place, and shape) are due to powers attributed to those bodies. Rāzī refers here to the arguments that Avicenna develops in his *De Caelo*

89 Rāzī, *Mulakhkhaṣ*, fol. 121<sup>a</sup>. The point refers to Avicenna’s approach in the *De Caelo et Mundo* discussed below.

90 Rāzī, *Mabāḥith*, 1, 502–5; *Mulakhkhaṣ*, fol. 84<sup>b</sup>–85<sup>a</sup>.

91 Lammer, *The Elements*, 286–306.

92 Rāzī, *Mulakhkhaṣ*, fol. 84<sup>b</sup>–85<sup>a</sup>.

93 Avicenna, *Kitāb al-Najāt*, ed. Mājid Fakhrī (Beirut: Dār al-āfāq al-jadīda), 179.

94 Rāzī, *Mulakhkhaṣ*, fol. 84<sup>b</sup>–85<sup>a</sup>.

95 As Cerami states (The *De Caelo et Mundo*, 289): “Avicenna wants to show that any simple body—whether it is a part of the sublunary world or of the supralunary world—is endowed with a power that, though displaying a multi-layered nature, remains a unitary principle.” Avicenna does so by proving one primary quality belongs to a species-form in *De Caelo et Mundo*. Rāzī’s distinction between empirical elements and hylomorphic elements in chapter two aims to oppose this approach.

*et Mundo*.<sup>96</sup> Notably, he then states that he is interested in a different question: “The philosophers have concurred that the powers that are the principles (*mabādī*) of that which [inheres] in bodies in terms of quality, place, and shape, are *forms rather than accidents*, but they have not provided a proof for that, so it is necessary for us to investigate it.”<sup>97</sup> As Cerami shows, Avicenna begins “abruptly” and assumes form and matter in his analysis of elements in *De Caelo et Mundo*. Rāzī’s point is notable when read in the context of the attributive view discussed above. He claims that the ontology of form and matter is taken for granted in the analysis of the elements. Moreover, the overlooked alternative—i.e., forms rather than *accidents*—is one that would accord nicely with his attributive, anti-hylomorphic approach. At the end of the above chapter, Rāzī makes explicit this very point. In the following passage, which Taftāzānī and others will later quote almost verbatim, Rāzī affirms his own preference for an attributive approach, in contrast to the hylomorphic analysis:

Know that that which has been obtained by proof is the grounding (*istinād*) of these attributes, like place, quality, and others, in powers that exist in a body, which are conserved in themselves (*maḥfūzat al-dhawāt*) and which return the body to these qualities upon the cessation of constraints and obstacles. As for whether those things are causes for the existence of corporeality, so that they correspond to constitutive forms (*ṣuwar*), or are not, so that they correspond to attributes (*aʿrād*), is something that has not been established by demonstration. What is closer [to the truth] *according to us* is not to make these causes of corporeality and to not count them as forms but rather as attributes.<sup>98</sup>

96 The *Mulakhkhaṣ* more directly addresses the question of whether the relevant attributes can be ordered in a linear and asymmetrical manner. For example, Rāzī argues that the relevant attributes of the elements (heat, cold, shape, etc.) cannot be shown to have the necessary and unitary causal order that Avicenna argues for in *De Caelo et Mundo* of *al-Shifāʾ* (Avicenna, *Shifāʾ, al-Samāʾ wa-l-ʿālam*, ed. by Maḥmūd Qāsim [Cairo: General Egyptian Book Organization, 1969], 1–15).

97 Rāzī, *Mabāḥith*, 2, 65. In *Mulakhkhaṣ*, fol. 121<sup>b</sup>, Rāzī states: “I have not seen any one of them [i.e. the philosophers] attempting to prove this result.”

98 Rāzī, *Mabāḥith*, 2, 64–5. Rāzī concludes by stating: “Since we have completed the clarification of the essential parts and the constituents of body, we turn now to its attributes (*aḥkām*).” Cf. Saʿd al-Dīn al-Taftāzānī, *Sharḥ al-Maqāṣid*, ed. by ʿAbd al-Raḥmān ʿUmayra (Beirut: ʿĀlam al-kutub, 1989), 79–80.

I return shortly to Rāzī's more detailed statements on the attributes of the four elements. In the above, it is notable that Rāzī does not deny powers; rather they are perceptibly evident. This supports the proposed reading that Rāzī views powers as empirical capacities in certain substances or kinds of bodies that give rise to certain attributes or effects. A parallel example he considered in Book I was medicinal paste and its effects. The question that Rāzī considers is whether such capacities must be viewed as caused by, or grounded in, constitutive forms. Here he means specifically the species forms (*al-ṣuwar al-naw'iyya*) of the elements, as clarified below. He states that there is no demonstrative proof for the elemental forms. His own view, as indicated by "according to us," is that the relevant properties are attributes. Given the previous discussion, it is reasonable to think that these attributes inhere in a simple body in the manner that accidents inhere in substances. Rāzī will have more to say about this, but first I turn to earlier debates regarding the nature of the elements.

There is a long history of debate regarding the relation between substances and accidents in the ancient commentarial tradition, and particularly concerning the status of differentiae as constitutive of hyломorphic compounds.<sup>99</sup> The immediate context for the present discussion is not a dispute between Avicenna and earlier Peripatetics, but rather a dispute between Galen's and Aristotle's views of the elements. As Abraham Stone aptly states the problem:

First, there is the distinction between (1) [the elemental substances] and (2) [the primary qualities (hot, cold, moist, and dry)]—if, indeed, there is any such distinction to be made. This issue particularly exercises Galen, because Hippocratic texts sometimes speak of bodies as complexions of "powers" (δυνάμεις)—among which are the primary qualities—without mentioning any species of body in which they inhere, and this was taken literally by some of Galen's opponents. For Aristotle, however, the elements are fire, air, water, and earth, which he describes as species of body and of substance, while hot, cold, moist and dry are species of quality, *which as such can never be found without substance*. Thus, Galen assures us that the Hippocratic way of speaking merely involves naming the ele-

99 See Frans De Haas, *John Philoponus' New Definition of Prime Matter* (Leiden, 1997), 165–250; Benevich, "Fire and Heat," 237. Rāzī addresses this problem in various places, including in his introductory discussion of substance and accident (*Mabāḥith*, 1, 243–7; 265–7).



ments by the qualities which they *have* in the extreme; there cannot, strictly speaking, ever be qualities without underlying bodies.<sup>100</sup>

As Stone clarifies, Galen's view was taken by his opponents to be in direct conflict with Aristotle's view that accidents cannot constitute a substance as *parts* and that substances, including the elements, cannot simply be a collection of accidents in a body.<sup>101</sup> Notably, Galen sees his own view as an interpretation of Aristotle's view of the elements and not as an alternative to it.<sup>102</sup> Galen believes, like the Peripatetics, that the four elements are the fundamental constituents of living and non-living things.<sup>103</sup> By contrast, Rāzī rejects the view that such properties are attributes or *propria* caused by substantial forms. Indeed, he rejects the notion that the four elements are the fundamental kinds of simple bodies in the sublunary world. The above reading is supported by the fact that Rāzī distinguishes his attributive analysis not just from Avicenna, but from *Aristotle* and *Galen*. In *Sharḥ 'Uyūn al-ḥikma*, Rāzī states,

As for the view taken by Aristotle and Galen, and the majority of the *falāsifa* and physicians, it is that the four elements are not generated from [simpler substances] other than them, and what is other than [the elements], in terms of the bodies of this world, is generated from them.<sup>104</sup>

Rāzī then discusses two distinct methods of establishing that the four bodies are indeed *uṣṭuquṣṣāt*, i.e. ontologically basic elements of the sublunary world.<sup>105</sup> The first method is the method of the physicians, which he labels the method of “composition and decomposition” (*ṭarīq al-tarkīb wa-l-taḥlīl*). The second method is that of “Aristotle and his followers.” Rāzī's analysis of the two methods is beyond the scope of the present study. What is of signifi-

100 Abraham Stone, “Avicenna's Theory of Primary Mixture,” *Arabic Sciences and Philosophy* 18 (2008), 99–119, esp. 102–3 (italics mine).

101 Stone, “Avicenna's Theory,” 103.

102 Inna Kupreeva (“Galen's Theory of Elements,” in *Philosophical Themes in Galen*, ed. by Peter Adamson, Rotraud Hansberger and James Wilberding (London: Institute of Classical Studies, School of Advanced Study, University of London, 2014), 161) states: “Galen claims to be relying on the Aristotelian version of the theory of the four elements, viz. earth, air, fire, water, each constituted by a pair of elemental qualities. These elements form the most basic structural level of a living organism.”

103 Kupreeva, “Galen's Theory,” 161, 189.

104 Rāzī, *Sharḥ 'Uyūn al-ḥikma*, ed. by A. al-Saqqā (Cairo: Maktabat al-anjū al-miṣriyya, n.d.), 2, 182.

105 On *uṣṭuquṣṣāt*, see Rāzī, *Mulakhkhaṣ*, fol. 136<sup>b</sup>.

cance is, first, that Rāzī knows that the cosmology of *falsafa*, which holds that the four elements are the fundamental substances of the sublunary world, is the view of Aristotle and his followers.<sup>106</sup> This is notable, because Rāzī does not refer to Aristotle and Galen in this context in either the *Mulakhkhaṣ* or the *Mabāḥith*.

Second, Rāzī knows that the Aristotelian view aims not simply to establish that there are four elements, i.e. that four kinds of elements are empirically known. Rather, the Aristotelians must prove that these four elements are ontologically basic kinds or species of bodies, from which all other composite substances are formed. He knows, moreover, that Aristotelian cosmology—including the notion of a singular cosmos and its form—hinges on this doctrine.<sup>107</sup> In *Sharḥ ‘Uyūn al-ḥikma*, Rāzī does not clarify his own approach, but he does emphasize that the arguments are inductive and that we cannot prove that the elements are the fundamental constituents of things. Regarding the physicians’ method, he notes, for example, that we do not *observe* gold as composed of the four elements, or that on exposure to heat, it decomposes into the four elements, and the same can be said about pearl.<sup>108</sup> Here, Rāzī refers us to his work on medicine, *al-Ṭibb al-kabīr*, where he claims to have discussed this method extensively.<sup>109</sup>

Let us now turn to Rāzī’s discussion of the above methods in the *Mulakhkhaṣ* and *Mabāḥith*. In these texts, Rāzī provides a more detailed discussion of the two methods. In the former work, in his discussion on whether “composites are produced from these four,” Rāzī focuses on two methods: the physicians’ method of composition and decomposition, and a “second method.” The second method is a summary of Avicenna’s argument in the *Physics* of *al-Shifā’*, a longer version of which Rāzī also examines in the *Mabāḥith*. In the *Mulakhkhaṣ*, Rāzī concludes with the following rejoinder:

The truth regarding this topic is that specialized induction (*al-istiqrā’ al-‘urfī*) indicates that all complete generated things (*al-mutawalladāt al-*

106 Here, again, Rāzī is aware of aspects of Aristotle’s context in physics, referring again to Presocratic views. He states that many of the ancients disputed the Aristotelian view, including Anaxagoras, whose view of unlimited mixture denies the generation of substances from simpler elements altogether (*Sharḥ ‘Uyūn*, 2, 181).

107 See, for example, his discussion of the uniqueness of the cosmos, Rāzī, *Mulakhkhaṣ*, fol. 136<sup>b</sup>.

108 Rāzī, *Sharḥ ‘Uyūn*, 2, 183.

109 His discussion in the *Mabāḥith* seems to be an extract from this work of medicine, which is not known to be extant.

*tamma*) only come to be upon the obtaining of these four. As for whether they [i.e. all four elements] are together the parts of those composite things or only some [of the four elements] as opposed to others are [their parts], and *whether composites from [elements] other than these [four] are rationally possible*, that is something that has not been established in any way by evidence.<sup>110</sup>

There are several significant points in Rāzī's passage that require attention. First, he states that the truth is that inductive methods show that composites are generated from the four elements. By this, Rāzī means that empirical evidence establishes the contingent truth that observable composites are generated from the empirically known substances. In the *Mabāḥith*, Rāzī states that he prefers the inductive and empirical approach of the physicians over the deductive method of Avicenna, to which I return shortly.<sup>111</sup> Moreover, Rāzī opposes two claims regarding the nature of the four elements. The first is that we cannot empirically establish the precise combination of elements in actual composite things. This point might be conceded by the Aristotelians. Rāzī's second point, however, opposes Aristotelian cosmology at a fundamental level, for he states that the evidence does not prove that it is impossible for generated things in the sublunary world to be composed of elements other than the four. That is, Rāzī here parses finely between the four elements conceived as contingent, empirical objects of analysis, and the four *fundamental* elements of Aristotelian ontology. As we will see, corresponding to this distinction, Rāzī distinguishes between empirical methods and the deductive or 'rational' methods that aim to support the Aristotelian position.

In the *Mabāḥith*, Rāzī's corresponding section is titled "On the elementality of these four" (*fī ustuquṣṣiyat hādhihi al-arba'a*).<sup>112</sup> Here he addresses three approaches to proving the Aristotelian view.<sup>113</sup> The first is the "method of the

110 Rāzī, *Mulakhkhaṣ*, fol. 136<sup>b</sup>.

111 Rāzī refers to *al-istiqrā' al-'urfī*, which I translate as 'specialized' or 'technical induction'. Given his reference to medicine (and other sciences, as we will see), I take him to mean the specific empirical methods (which may or may not be domain-specific) relied upon by experts in the particular sciences. His discussion of composition and decomposition in *Sharḥ al-'Uyūn* seems to include it as a method for alchemy. He seems to consider all such empirical methods as ultimately inductive. This all requires further investigation of the history of such methods.

112 Rāzī, *Mabāḥith*, 2, 124–142.

113 The first two approaches seem to correspond to the two approaches in the *Mulakhkhaṣ*, although the physicians' argument differs to some extent. The provenance of the third argument, which focuses on a body's receptivity to shapes and separability, is unclear.

physicians” and the second is Avicenna’s approach in the *Shifā’*.<sup>114</sup> Rāzī restates Avicenna’s argument in *al-Kawn wa-l-fasād* (*Generation and Corruption*)<sup>115</sup> and then raises a variety of objections to it, including methodological points.<sup>116</sup> Rāzī’s engagement with Avicenna’s arguments regarding the primary qualities is extensive. He again refers to and builds upon his preceding discussion in Part I of Book II of the *Mabāḥith* and *Mulakhkhaṣ*, specifically on the nature of primary sensible qualities (*al-kayfiyyāt al-maḥsūsa al-ūlā*).<sup>117</sup> An analysis of the content is well beyond the scope of this discussion but the following methodological points can be highlighted.

Regarding the correct combination of primary qualities in the Aristotelian view (i.e., hot-dry, hot-wet, cold-dry, and cold-wet), Rāzī asks whether the premises on which the theory is based rest solely on inductive knowledge or whether they are proven by ‘rational’ argument. To this, he quotes Avicenna as responding in the following manner: “Our affirming of the existence of the four elements is not based entirely on pure [rational] division but, rather, on a division that is followed by existence [in external reality], and nothing is more clear than that which the intellect indicates and existence then proves.”<sup>118</sup> Rāzī then proceeds to raise further problems regarding Avicenna’s claim that rational division is supported by what ‘exists,’ i.e. what is known by observation (*mushāhada*). Here he sharply divides between accidental or attributive qualities and natural qualities, e.g. *attributive heat* (*al-ḥarāra al-‘arāḍiyya*) and *natural heat* (*al-ḥarāra al-ṭabī‘iyya*). Avicenna’s argument aims to show the necessary connection between natural heat, which is the necessary property of the substance fire, and natural dryness. Against this, Rāzī argues that we may observe instances of the ‘attributes’ of heat and dry together, but we do not observe the ‘nature’ of heat as having the quality of dryness. Indeed, we do not observe any of these qualities in the sense required, i.e. as natures, and “if we do

114 Rāzī, *Mabāḥith*, 2, 124–6. I set aside the third argument.

115 Avicenna, *al-Shifā’*, *al-Ṭabī‘iyyāt*, *al-Kawn wa-l-Fasād*, ed. by Maḥmūd Qāsim (Qum, Iran: Maktabat Āyat Allāh al-‘Uẓmā al-Mar’ashī al-Najafī, 1404 [1983 or 1984]), 147–59.

116 Rāzī, *Mabāḥith*, 2, 129.

117 For explicit references, see Rāzī, *Mabāḥith*, 2, 130, 135. The discussion draws heavily on principles established in earlier discussions, including Rāzī’s analysis of motion and gradual change. He clearly opposes attempts to establish that the ‘correct’ combinations of primary qualities (hot-dry, hot-wet, cold-dry, and cold-wet) assumed in Aristotelian ontology are accurate and exhaustive. For example, he argues that wetness need not be viewed as a real quality.

118 Rāzī, *Mabāḥith*, 2, 129–30. Rāzī quotes, almost verbatim, Avicenna’s statement that begins the twelfth chapter of *al-Kawn wa-l-fasād*, which responds to various objections that Avicenna has considered in the preceding chapters (Avicenna, *al-Kawn wa-l-fasād*, 2, 176).

not observe that, then there remains only the rational division on its own, and you admit that that does not prove existence [i.e. in external reality].”<sup>119</sup> Again, Rāzī sharply distinguishes between empirical knowledge and the essentialist claims about the nature and qualities of hylomorphic substances.<sup>120</sup>

In his final analysis of Avicenna’s argument, Rāzī states that despite the prevalent adoption of Avicenna’s arguments in this context, they are weak and fail to go beyond what is proven by induction. He advises that it is therefore better to rely on the first method, i.e. the method of the physicians. In other words, since Avicenna’s argument falls short of its claim to be a rational demonstrative proof, one is better served by relying on the established empirical method, which is “closer to obtaining [results] (*al-taḥṣīl*) and precision (*al-ḍabt*), and farther from conflation and confusion.”<sup>121</sup> Rāzī’s own view of the elements seems to draw heavily on medicine, alchemy and the empirical sciences.<sup>122</sup> I return to his analysis of alchemical compounds below.

Following the above discussion of the three methods, Rāzī concludes by connecting the discussion of elemental natures with what he sees as the overarching problem with Aristotelian cosmology:

In my view, the truth regarding this topic (*al-bāb*) is that whoever attempts to expound an [exhaustive] limit (*bayān al-ḥaṣr*) for these elements by means of a rational division (*taqṣīm ‘aqli*) has attempted something that is not possible for one to fulfill. Rather, when people investigated [bodies] by means of composition and decomposition, they found that the composition of generated things begins with these four and their decomposition terminates with these four. Furthermore, they did not find these four as generated by the composition of other, [simpler] bodies, nor do they decompose into other, [simpler] bodies, and so they naturally believed that the elements (*al-uṣṭuquṣṣāt*) are [none other than] these four, not because a rational proof (*ḥujja ‘aqliyya*) was established that it

119 Rāzī states that the heat that is meant here by Avicenna is that of the simple substance (*al-jawhar al-basīṭ al-ḥārr*), namely fire. But what we observe is not the nature but heat that has no *necessary* connection to dryness. Rāzī is addressing Avicenna’s view that the primary qualities are ‘ordered’ in a necessary and ‘unitary’ manner grounded in the substantial forms of the elements.

120 It is worth noting that this epistemological critique corresponds to his approach to definitions and demonstrations in logic.

121 Rāzī, *Mabāḥith*, 2, 141. Rāzī states that Avicenna’s proof is actually inductive and not demonstrative (*laysat bi-ḥujja burhāniyya bal hiya min bāb al-istiqrā’*).

122 Rāzī is perhaps inspired by the more developed empirical and quantitative methods of the analysis of substances in alchemy, pharmacology, and related sciences.

is not rationally possible for there to exist an element other than these [four]. Rather, [they did so] because the evidence proves only these, and this is similar to when we judge that the orbs are nine, not because a rational proof has been established that it is rationally impossible for there to exist a tenth orb. Rather, it is because observation (*raʿd*) has only happened upon these nine. This is the truth regarding this topic.<sup>123</sup>

Rāzī draws a parallel between how Aristotelians view the microcosmic status of the four elements and the macrocosmic question of the nature and limits of the cosmos. He emphasizes the allegedly ‘rational’ nature of the arguments, which contrasts with empirical methods, including induction and the method of composition and decomposition. Rational methods aim to achieve an exhaustive understanding of the natures of things and their essential properties.<sup>124</sup> In various places in the *Mulakhkhaṣ*, Rāzī indicates that the division between rational arguments and empirical evidence has a parallel in the division between ‘demonstrative’ proofs for why such and such is the case (*limmī*), and non-demonstrative arguments for the fact that such and such is the case (*innī*).<sup>125</sup> Moreover, Rāzī provides a similar story with regard to the ancient discipline of astronomy and the principles of later natural philosophers (*al-ṭabīʿīyyūn al-mutaʾakhhirūn*). On the basis of inductive knowledge and transmitted records, ancient astronomers came to believe that the heavens are of unchanging nature; then, later natural philosophers sought to ‘contrive’ demonstrative proofs in support of this belief.<sup>126</sup> It can be noted that in such discussions of the *Mabāḥith* and the *Mulakhkhaṣ*, Rāzī does not refer to Ashʿarite theological views, although the connections are rather clear. As we will see, the connections become more explicit in postclassical works of *kalām*. In this way, Rāzī’s philosophical views are assimilated into the later, expanded

123 Rāzī, *Mabāḥith*, 2, 142; cf. Taftāzānī, *Sharḥ al-Maqāsid*, 3:173; and Avicenna, *al-Najāt*, 178–83.

124 That is, for Aristotelians, the claims are at least sufficiently exhaustive to construct necessary claims about natural kinds in the microcosmic world and about structural features of the cosmos.

125 Rāzī, *Mulakhkhaṣ*, fol. 129<sup>a</sup> (124<sup>a</sup>, 128<sup>a</sup>, 129<sup>b</sup>). Rāzī clearly sees demonstrative *limmī* arguments as the kind of causal and explanatory arguments required in natural philosophy by the Aristotelians. He refers to Aristotle explicitly in his discussion of the view that the heavens do not undergo generation and corruption (fol. 130<sup>a</sup>). Thus, in contrast to earlier Ashʿarites like al-Ghazālī, Rāzī views ‘demonstrations’ not simply as logical arguments that yield certainty, but as explanatory arguments (*limmī*) about the inner natures and causes of things.

126 Rāzī, *Mulakhkhaṣ*, fol. 124<sup>a</sup>.

version of *kalām*. Before turning to these postclassical works, I conclude with points concerning Rāzī's positive philosophical agenda and the long arch of his argument.

Rāzī's attributive approach can be viewed as part of a larger anti-essentialist philosophical project set against Aristotelian approaches in *falsafa*, and perhaps more generally, the Greek tradition of natural philosophy. In the logic of the *Mulakhkhaṣ* and elsewhere, Rāzī develops a systematic critique of central concepts in Aristotelian logic and epistemology, which takes a remarkably critical stance to the role of essential kinds and necessary properties in definitions and deductive inferences. The above analysis points to connections between his criticism of hylomorphism, conducted in the substantive philosophical analysis of Book II, and his anti-essentialist epistemology developed in logic. As we have seen, Rāzī repeatedly points out that the form and matter of things—as required in the Aristotelian analysis of substances—are epistemically inaccessible. It seems clear, to my mind, that Rāzī intends his anti-essentialist program in logic to prepare for the analysis of substantive philosophical views, and particularly for his own approach which emphasizes an empiricist method over the essentialist approach of the Aristotelians. But gestures toward empiricism do not yet amount to a positive alternative.<sup>127</sup>

### 3.1 *A Philosophical Alternative?*

It might duly be asked, what is Rāzī's philosophical worldview? If 'positive alternative' means a systematic approach that departs in essential ways from the ontologies of *falsafa* and classical *kalām* atomism, what might Rāzī's alternative look like? Rāzī's 'attributive' or 'substance-plus-accident' analysis is suggestive but compatible with various philosophical approaches, from Platonism to nominalism. It has been argued that Rāzī's logical principles commit him to a kind of phenomenalism or indirect realism, which distinguishes between perceptible phenomena and the fundamental essences of material things.<sup>128</sup> The

127 Together with his arguments against substantial forms, essential natures, and Aristotelian logical methods (e.g., real definitions), the scope and force of Rāzī's arguments are reminiscent of the attitude of some early modern philosophers, including Descartes and Locke. Their philosophical projects are, of course, very different. See Robert Pasnau, *After Certainty: A History of our Epistemic Ideals and Illusions* (Oxford: Oxford University Press, 2017), 1–20.

128 Avicenna's interpretation of Aristotelianism appears to commit him to an indirect realism with regard to sense perception. It is a matter of debate whether rational knowledge or 'intellection' is ontologically continuous with perception or whether it involves a kind of metaphysical leap requiring the Active Intellect.

above discussion shows that a sharp distinction between perceptible phenomena and underlying essences is central to the arguments developed at length and over an extensive range of topics in Rāzī's *Mabāḥith* and *Mulakhkhaṣ*. Rāzī supports an interpretation of substances and attributes as empirical objects in contrast to Aristotelian forms and essences. Here the distinction between empirical and noumenal objects allows Rāzī to pursue alternative interpretations of phenomena without first prescribing a *fundamental* ontology. He need not first decide between atomism and hylomorphism in order to pursue an analysis of sensible bodies. This points us towards Rāzī's approach to philosophy and ultimately, perhaps, to his worldview. Rāzī's alternative does not offer a *fundamental* ontology at all. Rather, in the *Mulakhkhaṣ* and *Mabāḥith*, he provides an alternative way of doing philosophy, which prioritizes epistemology over ontology. Philosophical domains of inquiry are determined, not by ontological kinds or subjects dictated by a singular metaphysics, but by the relevant objects of knowledge determined within the epistemology. With regard to substances and properties, Rāzī seems content to take, as our 'best' interpretation, the contingent objects established in the empirical sciences, including medicine, astronomy, optics, and alchemy.<sup>129</sup>

With regard to indirect realism as a frame of inquiry, in Part II of Book II, Rāzī enthusiastically endorses a 'third' theory of vision, as opposed to the received views of extramission and the form-intromission advocated by Avicenna and the Aristotelians. As argued, this third theory is Rāzī's appropriation of Ibn al-Haytham's groundbreaking 'phenomenalist' approach to optics, which dispenses with the form-transfer epistemology of Avicenna.<sup>130</sup> Remarkably, Rāzī reads Ibn al-Haytham's optical theory with a philosophical lens in a manner that is associated with new epistemological concerns. That is, Rāzī opposes the essentialist epistemology of the Aristotelians, where we acquire the sensible forms of composite things through visual perception, which in turn gives us access to the essence of those things. That Rāzī intends to read Ibn al-Haytham in this way, and that he pursues a thoroughly phenomenalist epistemology in substantive inquiry, might be doubted. Here it is necessary to thread together the longer arch of arguments that Rāzī develops in Books I and II, if we intend a serious engagement with his philosophical contribution. One needs to follow how Rāzī, through an aporetic engagement with his

129 Rāzī offers epistemic clarity and deductive consistency over the "depth" of the Aristotelian and Peripatetic tradition. He finds metaphysical inquiry into essences contingent and speculative but important to the philosophical and hermeneutic theology he develops.

130 Ibrahim, "Fahṛ al-Dīn al-Rāzī, Ibn al-Haytham and Aristotelian Science," 402–11.



opponents, develops his own philosophical views, which often remain in the background of the explicit arguments. Here, it is critical to track Rāzī's cross-references within each work, as well as the relation between the *Mabāhith* and the *Mulakhkhaṣ*. I return briefly to Rāzī's view of motion and change discussed in Part 2.

In the *Mabāhith*, Rāzī raises fundamental problems against the Aristotelian theory of accidental change.<sup>131</sup> He appears to operate purely as a critic, offering no apparent alternative. Here it might seem natural to view Rāzī's own position as reverting to the atomistic ontology of *kalām*, which reduces change to discrete events of accidents inhering in atoms. On such a view, regardless of whether he is an Ash'arite critic or an Avicennan commentator, Rāzī need not offer any real alternative. It is not until we turn to the corresponding section in the *Mulakhkhaṣ* that Rāzī asks *himself* this precise question, the answer to which contains a clear statement of his own, phenomenalist view:

Since you have raised an argument against gradual generation in reality [i.e. the Aristotelian view of qualitative change], what do you say with respect to these perceived gradual changes? We state, in order to clarify *our position on the matter by means of one example against which you can measure the rest* [of the accidents]: Let us suppose that there are ten degrees between black and white. If we make the first degree black, then among those intermediate colors there is what is in reality distinct from the black that is at the limit [i.e. in the first degree], but sense perception does not distinguish between the two. Then that species [of color] is followed by another, such that the difference between it and what is prior to it is not apparent. The same can be said of the third and the first to the final degree, and [between] each two successive species of those species differing in essence, there is a difference that sense perception is not able to apprehend between the two, except that with respect to the final degree, if it is correlated (*nusibat*) with the first degree, then a great difference that is perceptible becomes apparent. So if each of these degrees comes to exist in a moment and each persists for a time, then *perceptual gradation* obtains, even if *real gradation* does not obtain. If that

131 Rāzī's discussion and important background is assessed in Ahmed, "The Reception of Avicenna's Theory of Motion." Rāzī draws heavily on the aporetics of his predecessors, especially Abū al-Barakāt al-Baghdādī. However, Rāzī's positive, empiricist approach illustrated in the text below seems to have no precedent in these earlier thinkers.

has been clarified, then know that whenever we state that motion applies to [any] accident among accidents, we mean this interpretation.<sup>132</sup>

In the above, Rāzī endorses what appears to be a thoroughgoing relational theory of color and accidents, which rests on mental construction and which I have hypothesized as his philosophical reading of Ibn al-Haytham. I set aside a full analysis of the philosophical context of the passage, which I will conduct in an upcoming study. Importantly for the present discussion, the passage suggests two points for the reconstruction of Rāzī's philosophical worldview. First, Rāzī often articulates in the *Mulakhkhaṣ* what remains implicit in the *Mabāhith*. Second, as much of the preceding discussion has shown, Rāzī is not content with only aporetics and critique. Instead, he is interested in developing an alternative frame of inquiry. Thus in the above passage, after refuting gradual change on fundamental grounds, Rāzī is aware that he must account for the brute fact of our reality, i.e., that there are "these gradual changes" that we perceive. His alternative is a more radical interpretation of sensible attributes than any of the standard options.<sup>133</sup>

Finally, that Rāzī does not posit a *fundamental* ontology does not mean that he articulates no ontology at all or any overarching metaphysical stance. On the contrary, the above discussion indicates what Rāzī's overarching metaphysics and cosmology might be. Given his extensive critique of Aristotle's cosmology and natural philosophy, Rāzī's alternative should be one that sets aside the essentialist view of nature in Greek philosophy, with the necessary connections between natures and their properties that it entails, in favor of a contingent world that is more compatible with his Ash'arite theological stance. Here, in contrast to the essential natural kinds of Aristotelian philosophy, Rāzī's examples of substances are often artifacts and the compounds of medicine and alchemy. In other words, Rāzī seems to view external reality not as the independently existing Nature of the Greek tradition, but as

132 Rāzī, *Mulakhkhaṣ*, fol. 102<sup>b</sup>–103<sup>a</sup>.

133 Similarly, for example, in *Kitāb al-tibb*, MS Ayasofya 4850, fol. 16<sup>b</sup>, objecting to Avicenna's arguments for the elemental substances based on the combination of qualities, Rāzī states: "What I state on this difficult topic is that as we have mentioned in the preceding chapter, whatever is contiguous to the celestial orbs must be subtle (*latīf*) and hot, and everything that is of extreme distance from the orbs must be cold and dense (*kathīf*). Hence, these elemental parts [begin?] in the extreme of subtlety, heat, and lightness (*khiffā*), and they continue to gradually decrease in their rarity, heat and lightness, until they terminate in an extreme of cold and density. If that is the case, then this entails that [the elements] can accept degrees of strength and weakness in heat, cold, rarity, and density."

artifacts of God. He envisions a contingent world, like that of classical *kalām*, but one that is explanatorily more complex (and epistemically more cautious) than the limited atomistic framework of the latter. We find support for this reading of Rāzī's worldview in his analysis of medical and alchemical compounds.

In his analysis of elements, mixtures, and metallurgy, Rāzī addresses the status of alchemy and the question concerning the possibility of producing or transmuting metallic substances.<sup>134</sup> He begins by assessing why Avicenna and the *falāsifa* reject the *possibility* of alchemy. According to Rāzī, one reason is that if alchemy were possible, then what is *artificial* would be similar to (*mīthl*) what is *natural*. Such a view violates the sharp distinction between nature and artifacts that Aristotelians maintain. Rāzī responds, first, by providing examples in which what “exists by art is like that which exists by nature,” including fire produced by flint and wind produced by mechanical fans. The Aristotelians would, of course, dismiss such examples as boundary cases or as ontologically posterior to the natural order. Rāzī then states: “Even if there were no likeness of [nature in the artifact], this does not entail the denial [of its possibility], nor does the possibility of a natural thing obtaining by art necessitate the possibility of the converse [i.e. that nature produces that which is like the artifact]. Rather, the case is dependent on proof.”<sup>135</sup> In a preceding section, Rāzī summarizes the method of the alchemists and “how the seven [metallic] bodies are generated,” i.e. gold, silver, lead, iron, copper, tin, and quicksilver.<sup>136</sup> He focuses on the structure of compounds with respect to empirical properties and their production. In conclusion, he states: “The alchemists have maintained these claims on the basis of their coagulating mercury with sulphur through *observed compositions*, and so they form a strong opinion that *natural states correspond to artificial states*.”<sup>137</sup> If the artifact and the substances of alchemy serve as an analogy for things found in nature, then Rāzī's ontology can be significantly more complex. All of this, of course, stands in direct opposition to Avicenna's attack on alchemy, which rejects the possibility of elemental transmutation on metaphysical grounds: “[Alchemy] is false because artificial production is incapable of producing anything that God creates by means of Nature. Nature does

134 Rāzī, *Mabāhith*, 2, 223–6; *Mulakhkhaṣ*, fol. 142<sup>b</sup>.

135 Rāzī, *Mabāhith*, 2:225. The objection here is to the *falāsifa*'s argument that if a natural thing can be produced by art, then artificial things, like swords and beds, should be produced by nature. The view seems to allude to the Aristotelian principle of plenitude, i.e. that nothing that is possible by nature will remain eternally unactualized.

136 Rāzī, *Mulakhkhaṣ*, fol. 142<sup>b</sup>.

137 Rāzī, *Mabāhith*, 2, 223–224; *Mulakhkhaṣ*, fol. 142<sup>b</sup>.

not concern itself with what art produces.”<sup>138</sup> Rāzī’s way of drawing on alchemy and other sciences provides the guiding intuition for his alternative analysis of sensible phenomena.<sup>139</sup> I turn now to the reception of Rāzī’s attributive analysis in postclassical *kalām*.

#### 4 Postclassical *kalām* and Rāzī’s Alternative Ontology

The above discussion outlines key ideas and passages in the *Mabāḥith* and *Mulakhkhaṣ* that inform later *kalām* approaches to the analysis of sensible reality. Postclassical thinkers draw on Rāzī’s frame of inquiry in order to formulate novel views of complex substances. In the above, I have focused on Rāzī’s analysis of the sublunary world, and especially his systematic distinction between the four elemental substances, considered as fundamental parts of the sublunary world, and the elemental simples, considered as empirical entities. I turn now to the postclassical thinkers’ appropriation of Rāzī’s views, with a corresponding focus on their analysis of complex essences.

In the chapter on essence in Book I discussed above, Rāzī devotes several chapters to the analysis of the relations that obtain between simples and complexes. Of particular concern to him is the question of whether various kinds of composites can be viewed as possessing a unity, and how simples constitute composites. In section five discussed above (titled “On the manner of the composition (*ijtimāʿ*) of the composite essence by simples”), Rāzī assesses the dependency relations that hold between the parts of an essence and the essence as a whole. More specifically, he is interested in assessing whether simple parts can form more than accidental composites. As noted, he begins with the example of a rock lying beside a person, the two of which form a composite without being, as he puts it, a “unified reality” (*ḥaqīqa muttaḥida*). He then provides other examples of composite unities:

As for the composition (*takawwun*) of ten of the units it contains, [the composition] of paste (*maʿjūn*) through the composition (*ijtimāʿ*) of medical ingredients (*al-adwiya*), the [composition] of an army of individuals, and the [composition] of a village of houses, they are [all] due to a uni-

138 Avicenna, *Risāla fī ibtāl aḥkām al-nujūm*, ed. by Yahya Michot (Beirut: Albouraq, 2006), 5–6. See, also, Avicenna, *Physics*, 46–48.

139 The Arabic scientific tradition, and its efforts to problematize and pursue avenues of inquiry beyond the received tradition of Greek science, seems central to Rāzī’s approach, as are the intuitions of the *kalām* and Arabic linguistic traditions.

fiyng structure (*al-hay'a al-ijtimā'īyya*), which is one of the parts of the composite. It is the formal part (*al-juz' al-ṣūri*) on which the rest [of the parts] depend.<sup>140</sup>

As we will see, in postclassical *kalām*, these and additional examples of composites that Rāzī provides elsewhere become the paradigmatic examples. Most important will be the example of paste and the concept of the 'composing' or *unifying structure*, to which I return shortly. The above examples of composite unities are striking in several respects. First, they are not compelling examples of ontological unities from the perspective of either *kalām* or *falsafa*. Indeed, Rāzī's examples depart from the more obvious examples of composite unities in *falsafa* and Aristotelian philosophy, where the paradigmatic cases are the substances of living species (biological kinds), the four elements, and the celestial intellects. Rāzī's examples of artifacts and numbers are not ontological unities for the *falāsifa*.

The above passage raises questions regarding what Rāzī means by identifying the unifying structure as the "formal part" and the components or ingredients as the material part. As I have argued elsewhere, the unifying structure is a mind-dependent concept that identifies 'phenomenal' properties.<sup>141</sup> There is, however, more to be said about it, for Rāzī addresses a variety of relations between material parts and form in the *Mabāḥith* and the *Mulakhkhaṣ*, which attempt to explain, not a deeper ontological unity, but kinds of empirical unity.<sup>142</sup> For example, a paste brings together ingredients that are otherwise independent, not by virtue of a substantial form, but by virtue of applied processes, such as mixing and cooking, that produce the paste. Rāzī responds to an objector, who denies the need for dependency to obtain between the parts of paste:

If it is stated: Is it not the case that the [medicinal] paste is formed by a composition of parts, each of which is independent of another. We state: This is not the case. Rather, the collection of those parts is like a single part of the entity, which is the material part. As for the other part, which is the paste-form (*ṣūra majūniyya*) that is the principle of the effects manifested by it, it is dependent on the first part [i.e., the material part].<sup>143</sup>

140 Rāzī, *Mulakhkhaṣ*, fol. 49<sup>a</sup>; Rāzī, *Mabāḥith*, 1, 147. These examples are discussed by Avicenna in the context of form and matter in chapter 1.10 of *Physics*, 1, 66–8.

141 Ibrahim, "Faḥr al-Dīn al-Rāzī, Ibn al-Hayṭam and Aristotelian Science," 394–411.

142 Rāzī, *Mulakhkhaṣ*, fol. 97<sup>a</sup>; Rāzī, *Mabāḥith*, 1, 240–1.

143 Rāzī, *Mabāḥith*, 1, 56.

Recall that the analysis up to this point remains general, neither endorsing a robust hylomorphism nor problematizing it. Rāzī's notion of the unifying structure seems to be a general term that avoids the ontological implications of Aristotelian substantial forms.<sup>144</sup> I will now turn to how postclassical thinkers put it to use.

In his commentary on al-Ījī's (d. 1355) *Mawāqif*, al-Sharīf al-Jurjānī discusses essences in the second chapter of the book on general concepts.<sup>145</sup> The discussion begins with the example of the non-unity of 'human-and-stone' and proceeds to analyze the examples of composite unities, including those that Rāzī provides above, namely, the medicinal paste, the army, and number.<sup>146</sup> Jurjānī begins by stating that the composition of a (real) composite essence (*al-māhiyya al-murakkaba*) requires its parts to be interdependent, "for if each (of the parts) were independent of the others, a single essence would not obtain (as a real unity)."<sup>147</sup> That is, if there were no dependency relations between the parts of a thing, a true unity or essence would not obtain—a point underscored by Rāzī in the above text. Here, Jurjānī considers an objection to the examples of the paste and the army, since both consist of units or individuals that seem to be independent of the other parts. He then examines an initial response: "The formal part in both (which is the unifying structure [*al-hay'a al-ijtimā'iyya*] that is attributed to each individual or the units as a whole) is dependent on the material [part]."<sup>148</sup> Again, the point is precisely that made by Rāzī above. Still, *kalām* thinkers will raise problems regarding how precisely to understand the distinction, which remains rather vague. Addressing Ījī's dissatisfaction with the answer, Jurjānī raises an obvious objection, stating that this response is weak because a 'mental' or 'conceptual structure' (*al-hay'a al-i'tibāriyya*) can be applied to 'human-and-stone' as well, but this does not make the latter a real or mind-independent unity. Jurjānī then comments on Ījī's more "apt" response:

144 As discussed above, Rāzī does not think that prior matter exists only potentially and that form is necessary for the actual existence of material parts. He states: "We hold that the unifying structure (*al-hay'a al-ijtimā'iyya*) is one of the parts of the complex quiddity, but it is external (*khārija*) to the quiddities of its substrate parts (*ma'rūdātihā*), and conversely" (Rāzī, *Nihāyat al-'uqūl fī dirāyat al-uṣūl*, ed. Sa'īd A.L. Fūda [Beirut: Dār al-dhakhā'ir, 2015], 1, 111).

145 Jurjānī, *Sharḥ al-Mawāqif*, ed. M. 'A. al-Dimyāṭī (Beirut: Dār al-kutub al-'ilmiyya, 1998), 3, 59. See Alnoor Dhanani, "Al-Mawāqif fī 'ilm al-kalām by 'Aḍūd al-Dīn al-Ījī (d. 1355), and Its Commentaries," in *The Oxford Handbook of Islamic Philosophy*, ed. by Khaled El-Rouayheb and Sabine Schmidtke (New York: Oxford University Press, 2016), 375–96.

146 Jurjānī, *Sharḥ al-Mawāqif*, 3, 60.

147 Jurjānī, *Sharḥ al-Mawāqif*, 3:60. The main text is Ījī's, with Jurjānī's comments in parentheses.

148 Jurjānī, *Sharḥ al-Mawāqif*, 3, 60.

It is more apt to say in response: As for the paste, it is necessary that a mixture obtains in it (that is, a species form that applies to the mixture), which follows the qualities (and effects produced from it) and which (that is, that mixture, in the sense of form, is part of the paste) is dependent on the parts (by virtue of the [form's] inhering in the parts).<sup>149</sup>

The passage clearly follows Rāzī's mereological analysis, though it is unclear how Jurjānī views (robust) hylomorphism. Here, Jurjānī directly quotes the *Mabāḥith* and expands on the implications of Rāzī's view, highlighting a critical ontological point developed by Rāzī:

What we have mentioned is supported by the view of Imām Rāzī in the *Mabāḥith al-mashriqiyya*: "As for the other part, which is the paste-form and which is the principle of the effect produced from it, it is dependent on the other part, which is the collection of the individual parts." According to this, there is no problem. However, if 'mixture' is interpreted in its real sense and is made a part of the paste that is dependent on the rest of the parts, it follows that the substance, which is the paste, is composed of a substance *and* an accident. Some [thinkers] have permitted this, affirming the composition of the bed from a substance [i.e. substantial matter], which is the wooden parts, and an accident which is the specified ordering and the structure entailed by it (*al-tartīb al-makhṣūṣ wa-l-hay'a al-murattaba 'alayhi*). He [Rāzī] states: What is impossible is the composition of a substance from an accident that inheres in it, since the latter is posterior to the [substance], and is thus not a part of [the substance], but not its composition from another substance and an accident that inheres in the other substance, because what is then implied is the posteriority of one part to another part. Indeed, it is impossible for an accident to be a part predicated of a substance.<sup>150</sup>

Here Jurjānī introduces the possibility of an ontology in which substance is not constituted by form and matter, but of substance plus accident. As noted above, substances cannot be constituted by accidents. Jurjānī refers to some thinkers who admit this alternative position as valid. Below, we turn to thinkers who expressly endorse this view and the examples they offer of substances viewed as substance-plus-accident composites. It should be noted that Jurjānī

149 Jurjānī, *Sharḥ al-Mawāqif*, 3, 61.

150 Jurjānī, *Sharḥ al-Mawāqif*, 3, 61–2.

seems to assimilate the case of medicinal paste to that of a bed, i.e. an artifact, which requires wooden parts and a specific ordering (*tartīb*) or structure (*hayʾa*) and construction, which are accidents. As discussed earlier, the latter point is highlighted by Rāzī in the *Mabāḥith*, where he notes that wood is the “real existent part” of the bed and the order is a relational thing but a necessary component that cannot exist independently of the parts.<sup>151</sup> Rāzī views bed as a real, relational composite. He is well aware that this is not an example of robust form-matter analysis; however, although the more astute readers will recognize the distinction, it is not clear whether all postclassical thinkers distinguished between a robust Aristotelian form-matter analysis and Rāzī’s critical points regarding substances. As we will see, *kalām* thinkers will suggest distinctions that can capture varieties of composite essences.

The Razian framework informs the later thinkers’ approach to a broad scope of problems concerning essences, including the questions of the unity (*waḥda*), individuation (*tashakḥkhuṣ*), and causing of essences (*jaʿl al-māhiyya*). Rāzī seems to be the first to introduce the latter problem in a major work of *kalām*. However, he assumes his reader to be aware of the term, suggesting that it was already in use prior to him. It seems to be a reframing of the old *kalām* question of the ‘thingness’ of the non-existent essence (*shayʿiyyat al-maʿdūm*). Following Rāzī, later *kalām* works devote a section of their chapter on essence to this question.

In a chapter titled “Whether essences are caused (*majʿūla*) or not”, Jurjānī considers various positions on whether simple and composite essences are caused by some causer (*bi-jaʿl jāʿil*).<sup>152</sup> He first considers composite entities possessing physical magnitude or extension that are constituted of parts with distinct essences, like ‘one tree,’ which he refers to as “one in virtue of composition (*al-wāḥid bi-l-ijtimāʿ*).”<sup>153</sup> This kind of composite unity is contrasted with unity that obtains through contact or ‘contiguity’ (*ittiṣāl*), e.g. two bodies that are immediately next to each other. The unity of the tree, or the composite entity that is one in virtue of composition, is significant in the context of the above discussion regarding substance. Jurjānī comments regarding the tree: “For it is composed of extended parts that differ with respect to their essence, in contrast to a simple body like water on the view of the atom [i.e., according to those who endorse atomism], since the parts of [water], although they exist in actuality and as being composed, are similar in essence.”<sup>154</sup> Jurjānī’s refer-

151 Rāzī, *Mabāḥith*, 1, 151.

152 Jurjānī, *Sharḥ al-Mawāqif*, 3, 42–56.

153 Jurjānī, *Sharḥ al-Mawāqif*, 3, 45.

154 Jurjānī, *Sharḥ al-Mawāqif*, 3, 45.



ence to atomism here is rather puzzling, since one who holds to the atomism of *kalām* effaces any ontological difference between a composite like tree and an alleged simple like water. As discussed above, all composites are equally fictional. Here, water elements are not *real* simples according to *kalām* atomism; water does not have an essence above and beyond the atoms and accidents that constitute it, and is just as much a perceptual construct as tree. Jurjānī seems to be alluding to some distinction available to the *mutakallim* between homogenous and heterogenous composition of bodies.

Here the glosses on Jurjānī's commentary furnish us with some critical insights. In his glosses, the Ottoman theologian Ḥasan Çelebī al-Fanārī (d. 1481) makes the critical point that even the atomist is not committed to the view that all things beyond atoms and accidents are simply fictional or mental constructs.<sup>155</sup> Fanārī's point is not an isolated remark but a new approach that some post-Rāzīan *kalām* thinkers take to the analysis of the sensible world. Here the old form-matter ontology of Aristotelianism is problematized and largely set aside.<sup>156</sup>

The position that sensible composites can be viewed as possessing certain kinds of unity, which was stated above as a theoretical possibility, was pursued in practice by later *kalām* thinkers. Later thinkers begin to forge new ways of analyzing natural substances, like simple elements and biological composites. In this regard, 'Abd al-Ḥakīm al-Siyālkūtī (d. 1656), another glossator operating in the Indian subcontinent, states in somewhat more systematic terms: "According to those who hold that indivisible atoms are homogenous, it is not necessary that the composite and simple body is of the same genus, since the accidents by which simple bodies differ are constitutive of the [complex bodies] according to them. Hence, the complex body divides into extended parts that are not homogenous like the elements [which differ in terms of being fire, earth, etc.], and simple bodies divide into parts that are homogenous."<sup>157</sup> This

155 Fanārī, *Hāshiyat Sharḥ al-Mawāqif*, in Jurjānī, *Sharḥ al-Mawāqif*, 3, 46: "It has been said [regarding Jurjānī's comment]: There is then no distinction remaining between a tree and water, because a tree also divides into homogenous atoms according to the one who holds atomism. I respond [to that objection] with the possibility of accidents applying to the essences of bodies. Indeed, [I assert] the necessity of this according to those claiming homogeneity (*tajānus*), just as the author [Ījī] states in the section (*mawqif*) on substance. Thus, a tree divides into heterogenous things, which are the [simple] elements." This seems to be an affirmation of Rāzī's view of Body 1 as the substrate of the analysis of higher-order objects, as proposed above.

156 Jurjānī, Taftāzānī and others broadly adopt Rāzī's criticisms of robust hylomorphism, citing passages from the *Mabāḥith* and *Mulakhkhaṣ*. I briefly discuss their anti-hylomorphism below.

157 Siyālkūtī, *Hāshiyat Sharḥ al-Mawāqif*, in Jurjānī, *Sharḥ al-Mawāqif*, 3, 45–46.

is a remarkable reinterpretation of the elements and the fundamental constituents of natural reality. Siyālkūtī deploys the theoretical point gestured to by Jurjānī, namely that complex substances can be composed of substance-parts plus external attributes. As such, a tree is not a form or a vegetative soul that is a cause of the existence of the material parts of simple elements and natural mixtures; rather, some additional property (perhaps the structural property of biological processes) defines the complex unity of tree beyond the simple elemental matter that constitutes it. The details of such views require further study. Notably, Siyālkūtī views the above as consistent with atomism, which must differ from the classical atomism of *kalām*.

These discussions in postclassical *kalām* seem to mark a turn in the *kalām* tradition: *mutakallimūn* take seriously the analysis of complex reality. Moreover, *kalām* thinkers develop a frame of inquiry that departs from *falsafa*'s hylomorphism as well as the reductive ontology of classical *kalām*. It is significant that the above discussion, located in the section on general concepts in Ījī's *Mawāqif*, provides the theoretical framework for the substantive analysis of sensible things that follows. Thus, as in Rāzī's *Mabāḥith* and *Mulakhkhas*, the questions in general concepts and logic anticipate substantive discussions of sensible reality in later sections. A detailed analysis of Ījī's treatment of substances cannot be pursued here, but a few notes can be made with regard to the present discussion.

First, we turn to Ījī's discussion of substances referred to in the above passage.<sup>158</sup> Ījī begins by rehashing the philosophers' position on substantial forms, specifically the corporeal species forms. He describes how the contrary qualities of the elements can mix to form intermediary states—say, between absolute heat and cold—that are 'homogenous' with respect to each mixed, composite part. Importantly, they note that this homogeneity obtains as an objective feature of the world—i.e. 'in itself' (*naḥs al-amr*) or in external reality (*fi al-wāqif*)—as opposed to being something solely dependent on the mind or perception. When such a stable intermediary state is obtained, Ījī states that "this homogenous quality is called 'mixture' (*mizāj*), and what is prior to that composition is called 'combination' (*imtizāj*)." That is, in line with the Aristotelian and Galenic views, true mixtures possess a reality that physical blends or combinations do not possess.<sup>159</sup> Regarding the *falāsifa*'s definition of mixture as obtaining necessarily by means of the contact of different elemental forms, Ījī raises two problems (*ishkāl*) concerning the definition and status of forms.

158 Ījī, *Mawāqif*, in Jurjānī, *Sharḥ al-Mawāqif*, 7, 165.

159 See Stone, "Primary Mixture."

First, Ījī asks whether ‘contact’ is a necessary condition for such mixtures to occur. He provides the example of the sun, which can heat objects without being in contact. It is notable that in response to Ījī’s criticism, Jurjānī cites Rāzī as stating the following:

In the *Mabāḥith al-mashriqiyya*, [Rāzī states that] the correct [approach] here is to leave [rational] demonstration and rely on observation, so that one states that the matter concerns the parts of a mixture, which are no doubt in contact. We also observe that some [parts] neither affect others nor are affected by them, except by means of contiguity and contact. Hence, it is not relevant to ask why it is not rationally possible for an element to affect another [element] without contiguity and contact, because that is not what is required with regard to what we are concerned with [in this context]. Rather, the truth is that effects between them can obtain without contact, although it is rare.<sup>160</sup>

The quote corresponds nearly verbatim to what Rāzī states in his discussion of mixture.<sup>161</sup> Jurjānī’s point seems to be that the analysis concerns empirical objects and not necessary and underlying essences.

Following the above point, Ījī asserts the alternative view, drawing on Rāzī’s attributive distinction between external attributes and bodies. In his second problem related to the above definition of mixture, Ījī states: “Why did you state that there are forms beyond the qualities that are the agents? Why is it not possible that the [underlying] bodies are homogenous and the difference is in virtue of attributes rather than forms?”<sup>162</sup> Echoing Rāzī, Ījī wants to admit in the analysis of sensible reality only those properties that are empirically known.

Rāzī’s discussion informs not just the central teaching texts of Sunnī *kalām*, but also the later *kalām* commentaries produced on Naṣīr al-Dīn al-Ṭūsī’s (d. 1274) *Tajrīd al-‘aqrā’id*. Perhaps the most important commentary, at least for the study of physics, is that of the well-known astronomer ‘Alī al-Qūshjī (d. 1474). I turn to his discussion of general concepts, and specifically the mereological analysis of the dependency relation between the parts of composite essences, which correspond to the above chapters of the *Mawāqif*. Remarkably, the framework is evidently Rāzian, from the examples cited to the central concept of the unifying structure. In his discussion of the composite essence, Qūshjī states:

160 Jurjānī, *Sharḥ al-Mawāqif*, 7, 167.

161 Rāzī, *Mabāḥith*, 2, 159.

162 Ījī, *Mawāqif*, 7, 167–8.

Composition can be either mind-dependent (*i'tibāriyyan*), so that there are numerous things that the mind (*'aql*) considers as one thing, even if it is not one in reality, and one can posit for it a name, like 'ten' [that is composed] of ones, and 'army' [composed] of individuals. In this case, the dependency of some parts on others is not entailed. If it is stated: If what is meant is a lack of dependency absolutely, the [point] is invalid because the dependency of the structural form (*al-hay'a al-ijtimā'iyya*) on the material parts is self-evidently entailed. If what is meant is the lack of dependency with regard to that which obtains *between* the material parts, that is not required of the real composite either, as is the case of elemental simples [composing] mineral composites for example. We state [in response]: The first is meant [i.e., the lack of dependency absolutely], as structural forms in mental composites are purely judgements of the mind, without obtaining in external reality, for there is nothing of the army in external reality except the individuals. [...] The analysis of [mental composites] contrasts with real composites, since the latter possess structural forms that obtain *fī nafs al-amr*, as is the case with a house. Indeed, it can be that a mixture is generated by the interaction of its parts, as is the case with a medicinal paste. Indeed, substantial species forms are principles of wondrous effects, as is the case with the theriac (*tiryāq* [an ancient antidote]). If it is stated: In each mixture, the structural form is an accident. How can it then be a part of the paste or the house, which are substances? We state: *There is no impossibility in the composition of a substance from two parts, one of which is a substance and the other an accident subsisting in the substance that is its part.* Rather, what is impossible is only the composition of a substance from an accident subsisting in that substance, since [the accident] would be posterior to it, whereas the part of a thing is prior to it.<sup>163</sup>

From the above, it is clear that Qūshjī, like his predecessors in *kalām*, follow the guide of Rāzī in pursuing alternative avenues of ontological analysis beyond simple atomism and the problematic ontology of *falsafa*. Following the above analysis, Qūshjī goes on to consider the category of 'real' composites: "[A composite] can be real such that one essence, with real unity, obtains by means of the composition of numerous entities specified by external attributes and effects. It is necessary in such a composite that some dependency obtains between some parts and others. For if each of the parts were independent of

163 Qūshjī, *Sharḥ al-Tajrīd* (Tehran, 1884), fol. 92–3.

the others, a single essence, with real unity, would not obtain, *as is the case of a stone placed beside a man.*" Here, Qūshjī states that "the minds of the scholars have been confounded by the question of how an essence is composed of predicated parts, and they have differed according to four approaches."<sup>164</sup> He proceeds to analyze the various positions in detail, including the Aristotelian view of constitutive differentia and genus. Although clearly inspired by Rāzī's framework, over 250 years after him, *kalām* discourse was still evolving.

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<sup>164</sup> Qūshjī, *Sharḥ al-Tajrīd*, fol. 93.

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