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Falling to Pieces: Fakhr al-Dīn al-Rāzī's Mereology and the Dilemma of Multi-Located Accidents*

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Abstract: This paper offers a detailed reconstruction of Fakhr al-Dīn al-Rāzī's mereology. First, it tackles the semantics of the concepts "parthood" and "wholeness," their epistemic status, and their extension relative to one another. It then considers the most important properties characterizing part-to-whole relations. Particular attention is devoted to explicating the parts' conceptual and existential priority to the whole, which al-Rāzī deems to be an extensionally equivalent *proprium* of parts, and discussing al-Rāzī's arguments against the possibility of wholes with infinite parts. After that, the paper considers two particularly significant doctrines whose combination is specific to al-Rāzī's mereology, inherentism (in most cases one of the parts of a whole must inhere in the others) and reductionism (the whole is numerically identical to the sum of its parts), highlighting the historical background of the two in *falsafa* and *kalām* respectively, as well as laying out their implications. Finally, the paper delves into al-Rāzī's rejection of multi-located accidents, explaining why the latter is incompatible with his mereology. Unable to decide which horn of the dilemma to let go, al-Rāzī finds himself in a genuine antinomy.

Keywords: Inherentism, Fakhr al-Dīn al-Rāzī, Mereology, Multi-location, Reductionism

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Introduction

The subject-matter of mereology is wholes and parts. Mereology investigates the concepts "wholeness" and "parthood," the entities of which these concepts are true (wholes and parts), as well as the properties of both. This article discusses al-Rāzī's mereology from a general perspective, considering parts and wholes *simpliciter*, i.e., considered regardless of further qualifications or specifications.

The paper is organized into five sections. The first focuses on mereological attributes, their epistemic status, and their extension relative to one another. Section two tackles the relation between mereological entities, enumerating and discussing their key properties. Section three discusses al-Rāzī's mereological inherentism, meaning his position that inherence structures are required for the existence of wholes. Section four does the same for mereological reductionism, al-Rāzī's doctrine that a whole is nothing but the sum of its parts. Section five explains why al-Rāzī's mereology conflicts with his rejection of multi-located accidents (accidents inhering in more than one subject at the same time).

1. Mereological Attributes and Their Properties

We need to start by drawing a preliminary distinction, so as not to mislead the reader down the line. Mereological attributes (parthood and wholeness) are not the same as mereological entities (parts and wholes). Parthood (the attribute "being a part") is not the same as the entity that is a part, just as wholeness (the attribute "being a whole") is not the same as the entity that is a whole. To be more specific, parthood and wholeness are relational attributes that certain entities possess with respect to their mereological relata (this entity is a part *of that whole*, this entity is the whole *of that part*). A fitting example is parenthood, which is a relational attribute that a certain entity (a person) possesses with respect to a given relatum (another person).

Let us focus on mereological attributes and ask whether for al-Rāzī the concepts of wholeness and parthood are *badīhiyya*/*ḍarūriyya*/*awwaliyya* (epistemically immediate) or *iktisābiyya*/*naẓariyya* (epistemically mediate). Mediation means that we can find other, better-known concepts whose combination (in the form of a definition or a description) is the cause of us knowing wholeness and parthood.[1] Immediacy means the inverse: there are no such concepts.

1 Fakhr al-Dīn al-Rāzī, *al-Juz' al-awwal min al-Maṭālib al-ʿāliya*, MS Istanbul, Süleymaniye Kütüphanesi, Fatih 3145, 29b.

Wholeness and parthood are co-relative concepts, which means that conceiving of a whole qua whole requires conceiving of parts, and the other way around, just as conceiving of a parent qua parent requires conceiving of a child, and the other way around. In other words, mereological attributes are epistemically equivalent: the epistemic status of one of the two must be the same as the epistemic status of the other. Either both are immediate or both are mediate.

Although al-Rāzī does not tackle the issue of epistemic status in explicit terms, we have three reasons to believe that wholeness and parthood are immediate for him. First, he holds the radical view that all concepts in general are immediate.[2] Second, even putting his overall position on conceptual immediacy aside, al-Rāzī's texts give us the elements to construct an argument for the immediacy of wholeness and parthood specifically.

> [t1] The distinction between "whole" and "each one of the parts" is immediately known. "Part" means just "each of the whole's parts."
>
> (Rāzī, *Sharḥ ʿUyūn al-Ḥikma*, I, 59.2–4)

The proposition "The whole is distinct from the part" is known immediately. Al-Rāzī frequently used the principle that the concepts that figure in immediate propositions are themselves immediate.[3] Therefore, wholeness and parthood are immediate.[4] The same reasoning would apply if we took another immediate proposition of this sort, like "The whole is greater than the part."[5] The third and final reason corroborating wholeness' and parthood's immediacy is that, to the best of my knowledge, al-Rāzī never presents proper definitions or descriptions of them, contrary to what we find for example in Yaḥyā ibn ʿAdī (d.974).[6] At most, al-Rāzī mentions lexical variants or nominal definitions.

2 Fakhr al-Dīn al-Rāzī, *Muḥaṣṣal afkār al-mutaqaddimīn wa-l-mutåakhkhirīn mina l-ʿulamāʾ wa-l-ḥukamāʾ wa-l-mutakallimīn.* Ed. Ṭaha ʿA. Saʿd (Cairo: Maktabat al-kulliyya al-azhariyya, 1978), 16–18; *al-Mulakhkhaṣ fī l-ḥikma wa-l-manṭiq*, Ed. Ismaʿīl Hanoğlu and Saʿīd Fūda (Amman: al-Aṣlayn fi dirāsa wa-l-nashr, 2021), I, 98–101; *al-Juzʾ al-awwal*, 29b–32a.

3 For example, Rāzī, *Muḥaṣṣal*, 19.

4 I thank Hassan Rezakhany for pointing this out to me.

5 See, for example, Rāzī, *al-Juzʾ al-awwal*, 46a–46b.

6 Yaḥyā Ibn ʿAdī, *Maqālāt Yaḥyā b. ʿAdī al-falsafiyya*, Ed. Saḥbān Khalīfāt (Amman: Manshūrāt al-jāmiʿa al-urduniyya, 1988), 213.

This last point requires some further elaboration. The epistemic immediacy of the concepts signified by *kull* (whole) and *juz'* (part) does not mean that we are stuck with using exactly these words and no other. We might very well use other words or formulas to refer to those same concepts. This is exactly what al-Rāzī does. He treats *juz'* as synonymous with *mā yatarakkab ʿanhu ghayruh* (element of composition of something else)[7] and with *muqawwim* (constituent), and *kull* as synonymous with *murakkab*/*mutarakkib* (composite), *mutaqawwim* (constituted), and *majmūʿ* (sum). The semantic identification of *kull* and *majmūʿ* may be a sign of his commitment to mereological reductionism, which will be discussed later.

As mentioned previously, wholeness and parthood are co-relatives (*muḍāfān*), which means that they belong to the class of opposites (*muqābilān*). Being opposites, they cannot be predicated of the same subject at the same time and according to the same respect: one thing cannot be both the whole and the part with respect to the same relatum. However, they can be predicated of the same subject with respect to different relata: one thing may be a second's whole and a third's part. Additionally, it may also be the case that neither of the two is predicable of a subject. In summary, any given subject may be [i] a whole and not a part, [ii] a part and not a whole, [iii] neither a whole nor a part, or [iv] both a whole and a part with respect to different relata.[8]

2. Mereological Entities and their Properties

Keeping in mind the aforementioned distinction between mereological attributes (parthood, wholeness) and mereological entities (parts, wholes), let us now consider the relation between parts and wholes qua mereological entities. Such a relation exhibits seven main properties particularly important to al-Rāzī, either because he thematizes them explicitly or because he makes use of them at crucial junctures.

7 This formula is at best a nominal definition. It cannot be a real definition because it arguably boils down to explicating one co-relative by mentioning the other ("a part is what composes a whole"). In real definitions, the *definiens* must be epistemically prior to the *definiendum*. This cannot be the case for co-relatives, however, because they are epistemically equivalent to each other: one necessarily knows one when one knows the other. If one were to insist that the formula "element of composition of something else" does not make use of the concept of "whole," the formula would still fail to qualify as a real definition because it would simply amount to explicating parthood by itself, for parthood simply *is* the composition relation a thing bears relative to another.

8 Fakhr al-Dīn Rāzī, *Sharḥ ʿUyūn al-ḥikma*, 3 vols (Tehran: Muʾassasat al-Ṣādiq li-l-ṭabāʿa wa-l-nashr, 1994), III, 5; *Mulakhkhaṣ*, I, 101.

The first and most important property is [1] the part's priority to the whole in conception.

> [t2] Knowing a [composite] quiddity depends on knowing each of its parts, while it is evident that knowing each of its parts does not depend on knowing that quiddity. Hence, it is proven that knowing a part of the quiddity is prior to knowing the quiddity.
>
> (Rāzī, *Sharḥ ʿUyūn al-Ḥikma*, I, 61.1–3)[9]

The priority in question can be described as monodirectional conditionality. Knowing the part is a strictly necessary condition (i.e., a necessary condition that is not also a sufficient condition) for knowing the whole, while knowing the whole is not a strictly necessary condition for knowing the part. In other words, it is the case that, if the part is unknown, then the whole is unknown, while it is not the case that, if the whole is unknown, then the part is unknown. As I will explain later, this property holds between each one of the parts and the whole, but not between all the parts taken collectively and the whole.

The part's epistemic priority over the whole is compatible with the epistemic equivalence of parthood and wholeness mentioned in the previous section. This is because epistemic priority concerns mereological entities, while epistemic equivalence concerns mereological attributes. One may know a part-entity without knowing that it has the attribute of parthood.[10]

One might contend that the epistemic priority in question is incompatible with al-Rāzī's general contention that all concepts as such are immediate: how could the concept of the whole be immediate, given that it depends on the concept of the part? Solving this problem requires some interpretative work. When al-Rāzī says that every concept is immediate, he arguably means that no combination of

9 Cf. Fakhr al-Dīn al-Rāzī, *al-Mabāḥith al-mashriqiyya fī ʿilm al-ilāhiyyāt wa-l-ṭabīʿiyyāt*, 2 vols. Ed. Muḥammad al-Muʿtaṣim bi-llah al-Baghdādī (Beirut: Dār al-kitāb al-ʿarabī, 1990), I, 144–145; *Mulakhkhaṣ*, I, 101, 307.

10 A part-entity (e.g., a piece of wood) can be conceptually prior to a whole-entity (the chair) even though the attribute "parthood" (which attaches to the piece of wood with respect to the chair) is conceptually equivalent to the attribute "wholeness" (which attaches to the chair with respect to the piece of wood). This is because we can conceive of a part-entity without also conceiving of the attribute "parthood" (i.e., we may know this piece of wood without knowing that it is part of a chair).

other concepts can act as the sufficient cause of knowledge of that concept: this much suffices for his claim that we cannot give a real definition or description of any concept, as real definitions or descriptions are precisely combinations of concepts deemed sufficient to entail knowledge of the *definiendum*.[11] That a concept or combination of concepts cannot act as the *sufficient cause* entailing knowledge of another does not mean that such concept or combination or concepts cannot act as the *necessary condition* for this knowledge. The part's epistemic priority over the whole amounts to the latter claim (the part's concept is a necessary condition for knowing the whole's), which is compatible with immediacy (no concept is a sufficient condition for knowledge of the whole).

The parts' priority in conception is specific to al-Rāzī and not supported by Avicenna. The latter defends not that parts are prior in conception, but rather the less demanding claim that their priority is immediate in conception: if we conceive of the parts as well as of the whole, then we immediately know that the parts are prior to the whole.[12] This discrepancy is explicable in terms of a more fundamental disagreement concerning the identity between the whole and the sum of the parts: Al-Rāzī is a reductionist while Avicenna is not. Indeed, reductionism is the crucial premise in al-Rāzī's defense of priority in conception: for him, a composite quiddity is nothing but the sum of its parts, and knowing a sum thus depends on knowing each of its elements.[13]

An immediate entailment of conceptual priority is [1.1] *bayān al-thubūt* (attributive self-evidence) of the part with respect to the whole: the whole is immediately known to possess the part.[14] In other words, once we conceive of part and whole, we immediately know that the former belongs to the latter, without needing any intermediary to gain that knowledge.

11 Interpreting al-Rāzī's position on conceptual immediacy to imply the rejection of conceptual necessary conditions is unnecessary, as it does not help his case against real definitions, and uncharitable, as it makes his position hopelessly inconsistent since he explicitly allows for certain concepts to be dependent on others, e.g., the concept of a relation depends on that of its relata; the concept of a whole depends on that of its parts.

12 Avicenna, *Kitāb al-Shifā', al-Madkhal*. Ed. Georges Qanawatī, Maḥmūd al-Khudayrī, and Fawā'id al-Ahwān (Cairo: al-Maṭba'a al-amīriyya, 1952), 34–35

13 Rāzī, *Mabāḥith*, I,145. On reductionism see the third section.

14 Rāzī, *Mabāḥith*, I, 146; *Mulakhkhaṣ*, I, 307–308; *Sharḥ 'Uyūn*, I, 64.

A second property of part-to-whole relations is [2] the part's priority to the whole in existence, which we might also call monodirectional conditionality in existence. Analogously to the previous case, the existence of the part is a necessary condition for the whole's existence, while the whole's existence is not so for the part's.[15] Also similarly to priority in conception, this property holds between the whole and each one of its parts, not all its parts taken collectively.

> [t3] The part is prior to the whole in existence and non-existence. It is prior in existence because the existence of the composite depends on that of the simple, while the existence of the simple does not depend on that of the composite, as one may conceive that the simple exists separately from the composite. As for non-existence, the composite cannot become non-existent until one of its parts (or all the parts) becomes non-existent. Hence, it is established that the composite's non-existence depends on the parts' non-existence.
>
> (Rāzī, *Sharḥ ʿUyūn al-Ḥikma*, I, 60.6–11)[16]

This second property entails in turn [2.1] *istighnāʾ ʿani l-sabab al-jadīd* (causal sufficiency), meaning that whatever cause produces the whole is also sufficient for producing its part.[17] This affirmation should be taken to mean that the set of causes producing the whole *includes* that producing the part, not that the two sets are necessarily the same. Just as priority in existence is the ontological counterpart of priority in conception, causal sufficiency is the ontological counterpart of attributive self-evidence.

Al-Rāzī explicitly takes the conjunction of properties [1] and [2] to be coextensive with parts, meaning that every part is prior to something—that is, the whole—in both knowledge and existence, and everything prior to something in both knowledge and existence is a part. Coextension is not the case for the two entailments, [1.1] attributive self-evidence and [2.1] causal sufficiency: these are not specific to parts qua parts because the immediate implicates of quiddities possess them as well.

One may attack al-Rāzī's claim of co-extensiveness by arguing that the combination of [1] and [2] is actually more extensive than parts because it applies to at least

15 Rāzī, *Mabāḥith*, I, 145; *Mulakhkhaṣ*, I, 56; *Sharḥ ʿUyūn*, I, 60–61. The part's priority in existence is supported, albeit with some caveats, in Avicenna. *Kitāb al-Shifāʾ, al-Ilāhiyyāt*. 2 vols. Ed. al-Ab Qanawatī and Saʿīd Zāyid (Cairo: al-Hayʾa al-ʿāmma li-shuʿūn al-maṭābiʿ al-amīriyya, 1960), I, 248.

16 Cf. Rāzī, *Mabāḥith,* I, 144–145; *Mulakhkhaṣ*, I, 101, 307.

17 Rāzī, *Mabāḥith*, I, 146; *Mulakhkhaṣ*, I, 307; *Sharḥ ʿUyūn*, I, 64.

some efficient causes.[18] For example, fire would be prior to heating both in conception and existence: if we know fire, then we know it heats; similarly, if fire exists, then it heats. The counterexample fails, however. First and most importantly, the priority of an efficient cause over its effect is that of a sufficient condition: if the cause is (known, existent), then the effect is. As mentioned at the beginning of the section, this sense of priority is not the one under consideration here. The priority we are considering is that of a strictly necessary condition: if the part is not (known, existent), then the whole is not. Causes are often unnecessary for their effects to exist, as a single type of effect may be caused by two distinct types of cause (e.g., heat may be caused by fire or by friction), as well as unnecessary for their effects to be known. Second, even if we did not discriminate between priority of sufficiency and priority of necessity, the combination of [1] and [2] would still be specific to parts because al-Rāzī does not accept the *falsafa* principle that knowing a cause entails knowing its effect.

The foregoing does not mean that al-Rāzī's position on priority in conception and existence is without problems. Indeed, it may be at odds with other statements he makes, drawing on Avicenna. Some passages of *al-Mabāḥith* and *al-Mulakhkhaṣ* concede that the parts of certain wholes may exist in potentiality and not in actuality (e.g., portions of homogeneous bodies, based on the denial of atomism), which is incompatible with their priority in existence over the wholes. Additionally, potentially existent parts are posterior in conception to the whole, as their explication depends on knowing the whole and not the other way around.[19] *Al-Mabāḥith* goes further, presenting situations where actually existent parts are conceptually posterior to the wholes (e.g., the whole "human" and the part "human finger").

A way of reconciling the parts' priority with such statements could be to hypothesize that here al-Rāzī is using the term "part" in a loose sense which encompasses pseudo-parts, i.e., things that *resemble* parts in some aspect or another.[20] Another way could be to conjecture that those passages from *al-Mabāḥith* and *al-Mulakhkhaṣ*

18 I thank one of my anonymous reviewers for pointing out this possible critique.

19 Rāzī, *Mabāḥith*, I, 168–170; *Mulakhkhaṣ*, I, 320.

20 Something may be a pseudo-part of a certain whole because it is a part of another whole that resembles the one in question: e.g., "human finger" is a pseudo-part of "human *simpliciter*" because it is a part of "perfect human," and "perfect human" resembles "human *simpliciter*." See Avicenna, *Shifāʾ, Ilāhiyyāt*, I, 249–250; Rāzī, *Mabāḥith*, I, 169. The case of potentially existent parts is harder to explain. It may be that they resemble parts in that their *coming-to-be* in actual existence results from the same types of processes (e.g., cutting a homogeneous body) that result in the *separation* of parts (e.g., cutting a heterogeneous body).

merely relate an Avicennized form of mereology, which al-Rāzī ultimately rejected because he rejected its foundational principle (i.e., that bodies can have potentially existent parts).

The third main property of parts and wholes is [3] the extensional separation between a whole's parts and its attributes (an attribute being what has a relation of inherence to a thing, like an accident or a form): no part of a whole can be an attribute of that whole. This assertion specifically relates to priority in existence, as al-Rāzī's argument builds on it. Something's parts are prior to it in existence; its attributes, on the other hand, are posterior to it, because they inhere in it, and what inheres in something is posterior to it; therefore, no part is an attribute.

> [t4] The part of a quiddity is not one of its attributes because an attribute inheres in the subject-of-attribution. What inheres is posterior to the subject-of-inherence, hence an attribute is posterior [to its subject]. On the other hand, not part can be posterior [to the whole]. Therefore, no attribute is a part, and no part is an attribute.
>
> (Rāzī, *Mulakhkhaṣ*, I, 58.3–5)[21]

Al-Rāzī considers a possible objection: inherence may not entail posteriority, since what inheres in a subject may be the efficient cause for that subject, as well as for its own inherence in the subject. This objection will be discussed later.[22] More generally, it should be noted that the separation of parts and attributes has significant and problematic consequences. By al-Rāzī's own admission, separating parts and attributes makes predicating parts of wholes (e.g., "humans are rational," assuming that "rationality" is a part of "humanity") unintelligible. For him, predications can be ontologically grounded only in subject-attribute relations.[23] Part-whole relations

21 Cf. Rāzī, *al-Mabāḥith*, I, 144–145; *Mulakhkhaṣ*, I, 101, 307.

22 Rāzī, *Mulakhkhaṣ*, I, 58. For a discussion of the objection, see the third section.

23 He explicitly holds that any predicative structure allows for only three options when it comes to the ontological counterparts of its subject and predicate-term. Either [1] the subject-term corresponds to an entity and the predicate-term to an attribute of that entity (e.g., "this human is white"), or [2] the subject-term corresponds to an attribute and the predicate-term to the entity having that attribute ("this white thing is a human"), or [3] both the subject-term and the predicate-term correspond to attributes of the same entity ("this white thing is movable"). See Rāzī, *al-Juz' al-awwal*, 177b. It is easy to see that only subject-attribute structures can ground predications, as explicitly confirmed in Rāzī, *Mulakhkhaṣ*, I, 310 and already noted in Bilal Ibrahim, "Beyond Atoms and Accidents. Fakhr al-Dīn al-Rāzī and the New Ontology of Postclassical Kalām," *Oriens* 48, no.1–2 (2020): 95.

are not of this sort.[24] The predication of parts appears to be an unsolved problem of al-Rāzī's mereology.

The fourth property is [4] the "no negative part" rule. An existent whole cannot include something negative (e.g., "blind," "non-horse") as one of its parts, because negative things are instances of non-existence and existents cannot be composed by non-existents. al-Rāzī specifies that this property applies to concretely existent wholes only: *iʿtibarī* (mentally construed) wholes may include negative parts.[25]

The fifth property is [5] the contingent transferability rule. From a preliminary perspective, a given attribute predicable of every part in isolation may be predicable of the whole and may not be. Determining whether it can be requires considering the specific attribute in question and possibly performing some inference.[26] For example, if every part of a body has the attribute "black," then the whole body is black. However, it is not necessarily the case that, if each moment of time has the attribute "began to exist," then the totality of time began to exist.

The sixth property is [6] the "no infinite complexity" rule: every whole is ultimately composed of simples, either immediately or mediately. If the first-order parts of a whole were themselves composites and not simple, they would themselves be wholes composed of second-order parts. This state would lead either to a foundational level of simple parts, which would mean no infinite complexity, or to an infinite number of parts, which al-Rāzī rejects (see property [7]). Additionally, he notes that even an infinite multiplicity would satisfy the "no infinite complexity" rule, because any multiplicity qua multiplicity, be it finite or infinite, consists of unities that are

24 Rāzī, *Mulakhkhaṣ*, I, 309–310. al-Rāzī does mention the hypothesis that, in the case of parts and wholes, predication corresponds to unification in existence: predicating the part of the whole means that the two share the same existence. However, he quickly dismisses the option, contending that it would lead to a single accident inhering in more than one subject, meaning the multiple parts of the whole. On his reasons for rejecting accidents inhering in more than one subject, see the fifth section. Additionally, unification in existence would lead either to rejecting the part's priority in existence (if one supposed the part to have only one existence, shared with the whole, with no distinct existence of its own) or to affirming that a single thing exists twice (if one supposed the part to have one existence in isolation and another shared with the whole). On this second problem see also Rāzī, *Sharḥ ʿUyūn*, I, 82–83.

25 Rāzī, *Mabāḥith*, I, 160; *Mulakhkhaṣ*, I, 61; *Sharḥ ʿUyūn*, I, 82.

26 Rāzī, *Mulakhkhaṣ*, II, 583. On the historical development of discussions around this rule, see Ayman Shihadeh, "Mereology in Kalām: A New Reading of the Proof from Accidents for Creation," *Oriens* 48 (2020): 5–39.

simple in themselves. In other words, infinite complexity would be incoherent even if one granted that numerical infinities are possible, because numerical infinities are themselves constituted of (infinite) ground-level, simple parts.

The rejection of infinite complexity is to be distinguished from the [7] "no numerical infinities" rule, the seventh and last property we need to examine. This rule simply means that a whole cannot be constituted by an infinite number of parts, regardless of whether those parts are themselves composite or simple.

Al-Rāzī's case against numerical infinity combines two sets of arguments that support two conclusions with different levels of generality: [a] the rejection of all numerical infinities *simpliciter* and [b] the rejection of essentially ordered numerical infinites.[27]

The case for [a] consists of one main argument and two ancillary arguments. The main argument is based on the unknowability of numerical infinities. Quiddities with an infinite number of parts would be unknowable, and unknowable things cannot exist.

> [t5] Quiddities must be capable of being objects of reference. Infinities cannot be summoned to the mind in detail. Therefore, they would be inconceivable and unknowable.
>
> (Rāzī, *Mabāḥith*, I, 161.8–10)[28]

The assumption that unknowable things cannot exist is insufficiently justified, appearing even weaker when we consider that by "unknowable" al-Rāzī means "unknowable by human minds specifically."[29] It is *prima facie* possible that some things may be unknowable by humans. In *Sharḥ al-Ishārāt*, al-Rāzī recognizes that this is just a rhetorical argument, not a proper demonstration.

Al-Rāzī also presents two ancillary arguments against numerical infinities qua infinities, each one based on a property of numbers that infinities do not share (being either even or odd, being divisible into portions of smaller size). In each case,

27 Rāzī, *Mulakhkhas*, I, 61, 306; *Mabāḥith*, I, 142, 162, 575; *Sharḥ ʿUyun*, I, 59.

28 Cf. Fakhr al-Dīn al-Rāzī, *Sharḥ al-Ishārāt wa-l-tanbīhāt*, 2 vols, Ed. ʿAlī R. Najafzāde (Tehran: Anjuman-i āthār va mafākhir-i farhangī, 2005), I, 67; *Mulakhkhaṣ*, I, 61;.

29 He cannot mean "unknowable by any mind whatsoever, even God's" because he admits that God knows infinities. See Fakhr al-Dīn al-Rāzī, *al-Arbaʿīn fī uṣūl al-dīn*, 2 vols. Ed. Aḥmad Ḥ. al-Saqqā (Cairo: Maktabat al-kulliyya al-azhariyya, 1986), I, 201–202; *al-Maṭālib al-ʿāliya mina l-ʿilm al-ilāhī*, 9 vols. Ed. Aḥmad Ḥ. al-Saqqā (Beirut: Dār al-kitāb al-ʿarabī, 1987), III, 147–149.

all numbers have the property in question, while infinities do not. Hence, infinities do not exist. However, al-Rāzī recognizes that such arguments are incorrect if we assume the tenets of *falsafa*, so we should be skeptical about his commitment to them.

The second set of arguments [b] refutes essentially ordered infinities. An essentially ordered infinity is one whose elements are ordered by priority and posteriority due to some ontological relation that holds between them (e.g., dependence, causation). al-Rāzī's case boils down to an application of the general principle that infinite, essentially ordered series are impossible.[30] [b] implies the rejection of wholes with infinitely many parts, each one of which depends on another part (e.g., a species composed of an infinite number of differentiae and an infinite number of genera). Not all infinities are like that, however, as there may be wholes with infinitely many parts not each one of which is dependent on another (e.g., a body made of infinitely many atoms).

Thus far, the picture appears coherent. Al-Rāzī rejects numerical infinities both in an unqualified sense and in the qualified sense of essentially ordered infinities. A problem, however, appears when we consider a passage of *al-Mulakhkhaṣ* where al-Rāzī discusses Avicenna's *burhān al-ṣiddiqīn* (Proof of the Truthful). The distinctive core of the famous argument contends that, even if we conceded that an essentially ordered infinity of contingent causes could exist, such infinity would be contingent. Crucially, this assertion requires us to take an infinite series as a whole or sum in order to ascribe the attribute "contingent" to it. One critique marshalled against this assumption argues the concepts "sum" and "infinity" are incompatible because the former can only be conceived of when dealing with finite quantities.

> [t6] We do not grant that those infinite causes have a sum, because "sum" is graspable based on finitude. An infinity cannot be described by attributes graspable based on finitude. Therefore, we can ascribe those causes the attribute "whole" or "sum" only after having proven that they are finite. If that were proven, you would not need the present proof.
>
> (Rāzī, *Mulakhkhaṣ*, II, 580.9–12)

30 Rāzī, *Mabāḥith*, I, 162; *Sharḥ al-Ishārāt*, I, 67–68.

Al-Rāzī's move against the objection is to challenge the assumption that finitude is necessary to grasp the attribute "sum." For there to be a whole, the non-exclusion of relevant elements is sufficient. In other words, we merely need to take contingent causes without excluding any of them. Finally, al-Rāzī adds that anyone holding the infinity of the series of causes must do the same, for the attribute "infinite" describes the sum as such, not any of its elements or each one of them in isolation.[31]

The problem concerning numerical infinities is thus as follows. On the one hand, we have al-Rāzī's contention that numerical infinities (both as such and qua essentially ordered) are impossible. On the other hand, we have his remark that the notions of "whole" and "infinity" are somehow compatible.

One way of solving the problem is to hypothesize that al-Rāzī merely allows for *prima facie* compatibility between the two: "whole" and "infinite" are compatible only in the sense that one concept does not *immediately* entail the negation of the other. At first glance, we may entertain the concept of a whole with an infinite number of parts without contradiction, meaning that we can make use of such a concept in *burhān al-ṣiddiqīn*. The incompatibility between "whole" and "infinity" is complete, but derivative: it holds through the mediation of some other inference not considered in *burhān al-ṣiddiqīn* (e.g., from knowability). It is worth stressing that this hypothesis rejects any real, extensional overlap between infinities and wholes, asserting that no whole is a numerical infinity, and that no numerical infinity is a whole.

Another hypothesis is that al-Rāzī is not committed to the soundness of *burhān al-ṣiddiqīn* in the form Avicenna presented it, meaning an argument that intends to infer the existence of God regardless of whether the chain of contingent causes is posited to be finite or infinite. al-Rāzī's statement in *al-Mulakhkhaṣ* would then simply amount to a dialectical, non-committal defense of Avicenna from a hypothetical opponent, not to al-Rāzī's own position, and so the fact that the defense in question is incompatible with al-Rāzī's position on infinity would be irrelevant.

31 Rāzī, *Mulakhkhaṣ*, II, 582–583.

3. Mereological Inherentism

It stands to reason that a genuine whole cannot be formed from just any arbitrary collection of things. There ought to be specific conditions for mereological constitution, i.e., for specific collections of things to be genuine wholes.

For al-Rāzī, every whole must include at least one part having an asymmetrical ontological relation to the other parts, i.e., a relation that requires the part in question to depend on the others, while the others do not depend on it. I call this position "inherentism" because the asymmetrical ontological relation in question is, in most cases, *ḥulūl* (inherence). One part, often called the "formal" part, inheres in the other(s), called the "material" part (or parts). This inherence is true in all cases presented by al-Razi except one and, even there, inherence is still required in some way.

Al-Rāzī's inherentism develops out of Avicenna's theory of mereological constitution. It is worth quickly outlining the latter in its main coordinates, an operation that requires us to consider the interaction between Avicenna's hylomorphism and his theory of real definitions. For Avicenna, a real definition (as opposed to a description or a nominal definition) explicates the totality of the *definiendum*'s quiddity by listing all and only its essential parts.[32] al-Rāzī deems real definitions uninformative, but that is a separate issue.[33]

All this means not only that definable quiddities have hylomorphic parts, but also that there must be a structural correspondence between definitions and *definienda*. Definitions have a genus-differentia structure, where the genus expresses all the parts shared by the *definiendum*'s quiddity and others while the differentia expresses the parts specific to the *definiendum*'s quiddity alone. This definitional structure corresponds to a hylomorphic structure in the definable quiddity. The latter has a distinctive formal part (corresponding to the differentia) which inheres in a non-distinctive material part (corresponding to the genus).[34]

32 Avicenna, *Shifā'*, *Madkhal*, 37–41.

33 On Rāzī's critique of real definitions, see Fedor Benevich, "Meaning and Definition: Scepticism and Semantics in Twelfth-Century Arabic Philosophy', *Theoria* 88 (2020), 72–108.; Mehmet Özturan, "An Introduction to the Critique of the Theory of Definition in Arabic Logic: Is Complete Definition Circular?" *Nazariyat* 4/3 (2018), 85–117..

34 Avicenna, *Shifā'*, *Ilāhiyyāt*, I, 213–217.

This structural correspondence is clear for the quiddities of corporeal substances. For example, the quiddity "human" is composed of the distinctive formal part "rational soul" (corresponding to the differentia "rational") and the non-distinctive material part "animal body" (corresponding to the genus "animal").[35] A less apparent but equally significant example is numbers. Avicenna is explicit that each number (e.g., ten) constitutes its own species, distinct from the species of every other number. The quiddity of the species in question is not reducible to a mere plurality of units. Each number must have a specific, constitutive, unitary form (e.g., ten-ness).[36] This form is nothing but the formal part of that number's species and figures as the differentia in its definition. Again, the hylomorphic understanding of definable quiddities is at play: each species of number is composed of a material part (the mere plurality of units, corresponding to the genus "discrete multiplicity") and a formal part (ten-ness, which corresponds to the differentia of "ten").

This account becomes problematic in several cases. As noted by Avicenna himself, extending the definition-*definiendum* correspondence to all definable quiddities encounters significant obstacles, as most accidents (e.g., perceivable qualities, continuous quantities) as well as incorporeal substances (e.g., human souls) do not have concretely existent parts corresponding to the parts of their definitions. These problems explain Avicenna's remark that these things' differentiae and genera are mentally construed, further developed in the post-Avicennian doctrine of mental composition (*tarkīb dhihnī*): some quiddities are composite only when existing in the mind, not when existing extra-mentally.[37] al-Rāzī criticizes the mental composition solution as part of his wider case against conceptualism in general.[38]

Now we get to al-Rāzī's own formulation of inherentism. As noted by Ibrahim,[39] al-Rāzī holds that, for there to be a whole at all, there must be a relation of dependence between one part of that whole and the others (infra-parts dependence).

35 Avicenna, *Shifāʾ*, *Ilāhiyyāt*, I, 238, 240, 244–245, 248.

36 Avicenna, *Shifāʾ*, *Ilāhiyyāt*, I, 119–120.

37 Avicenna, *Shifāʾ*, *Ilāhiyyāt*, I, 239–240. On mental composition, see Rāzī, *Mabāḥith*, I, 147–149; *Mulakhkhaṣ*, I, 308–309.

38 Francesco O. Zamboni, "Weak Discourses on People's Lips. Fakhr al-Dīn al-Rāzī against Representationalism and Conceptualism," *Nazariyat* 9/2 (2023), 69–112. The consequence al-Rāzī outlines is not that we should insist on the extra-mental composition of the quiddities in question in order to save their definability, but rather that we should reject their definability altogether precisely because they lack extra-mental parts corresponding to the genera and differentiae of their supposed definitions (*al-Juzʾ al-awwal*, 109b–113b).

39 Ibrahim, "Beyond Atoms and Accidents," 70, 110–111.

> [t7] It could not be that all parts are independent of all other parts. A stone placed next to a person [and the person] do not make a unified nature. That "ten" is formed from units, a concoction is formed from a bunch of drugs, an army is formed from individual [soldiers], and a town is formed from houses is due to the fact that the combinatory structure (*hay'a ijtimā'iyya*) is a part of [each such] composite, i.e., the formal part, which is dependent on the rest [of the parts].
>
> (Rāzī, *Mulakhkhaṣ*, 1:308.6–12)

Al-Rāzī further explains that dependence must be monodirectional. It cannot go both ways, as that would lead to a circularity. Additionally, dependence must be infra-parts, such that one part depends on the others. Mere extra-parts dependence, in which the parts depend on some other thing that is not a part, is insufficient for mereological constitution.[40] Only monodirectional, infra-parts dependence can yield a unified whole. Al-Rāzī's mention of a "formal part" (*al-juz' al-ṣūrī*) means that, at least in cases like those listed here, the dependence relation in question is inherence. If there are formal parts, there must be material parts, as well as inherence relations between them.

A feature often assumed to characterize formal parts is their epistemic distinctiveness, meaning that they can be used to single out the composite quiddities of which they are parts, distinguishing them from all other quiddities. The widespread idea is that a quiddity's formal part corresponds to the differentia figuring in its definition (e.g., the formal part "animal soul" corresponds to the differentia "perceiving and moving voluntarily" in the definition of "animal"). However, this understanding of formal parts does not encompass certain non-standard cases al-Rāzī presents. It is thus better to use the term "formal part" in the general sense of "part inhering in another part," without assuming that the inhering part is necessarily distinctive (i.e., a differentia) for the whole it constitutes.

In sum, the standard, most intuitive examples of mereological constitution (artifacts, organisms, numerical sums) require a distinctive formal part inhering in non-distinctive material part(s). Presenting different, non-standard cases requires us

40 Rāzī, *Mabāhith*, I, 147. Extra-parts dependence, taken without any type of intra-parts dependence, would result in a "gappy" quiddity whose unity is grounded in something extrinsic to it. An example would be the composition of two separate accidents existing in a single substance, where neither of the two accidents is the cause of the other and the substance in question is not taken as one of the parts of the composite (e.g., the composite of "volition" and "whiteness" inhering in a single human). Mere extra-parts dependence is not to be confused with the acceptable, albeit non-standard, case in which extra-parts dependence is combined with intra-parts dependence, as discussed in the rest of this section.

to discuss four issues.

[1] Whether inherence is always necessary for mereological constitution.

[2] Whether inherence alone is exhaustive, meaning sufficient for explaining all cases of mereological constitution.

[3] Whether formal parts are always distinctive.

[4] Whether formal parts may be the efficient causes of material parts.

The passage quoted above states that a genuine whole requires infra-parts, monodirectional dependence. It is not immediately clear that [1] this type of dependence always requires inherence. For one, efficient causation might fit the bill. An efficient cause and its effect might constitute two parts of a whole, as the effect mono-directionally depends on the cause.

Al-Rāzī does say that wholes like "ten," "concoction," or "army" have a formal part, which implies an inherence relation. However, he presents formal parts as a way of preventing a hypothetical objector from using such wholes as counterexamples against the dependence requirement (e.g., by arguing that the units composing "ten" are independent from one another). By itself, this move only proves that al-Rāzī is committed to inherence relations in the case of these specific wholes, not in the case of all wholes qua wholes.

However, a wider survey of al-Rāzī's texts proves this much: inherence relations must always be involved for the constitution of a whole. Efficient causation alone is insufficient. Al-Rāzī is explicit that, if not unified by an inherence relation, an efficient cause and its effect cannot constitute a whole. Interestingly, he notes that this argument undermines the Avicennian doctrine that the quiddity "human being" is a genuine composite of "rational soul" and "animal body," recalling that for Avicenna, the rational soul does not inhere in the body, being a self-subsistent, incorporeal substance.

> [t8] The sum of such things does not result in a species-quiddity that has genuine unity, which fact invalidates the claim that a single quiddity results from the [combination of] the soul and the animal body, that single quiddity being "human." This is because the two are essentially distinct substances. They are connected only by the fact that the soul controls the animal body. Were this kind of connection sufficient for [the soul] to be a differentia for "animal body," the Creator, exalted is He, would have to be a differentia for "world" due to the fact that He controls it.
>
> (Rāzī, *Mulakhkhaṣ*, 1:316.7–12)

Al-Rāzī speaks specifically of *tadbīr* (control), which is a type of efficient causation. However, his discourse applies to efficient causation in general, because God is the efficient cause of the universe in an absolute, as well as its controlling cause. Inherence is thus always required for mereological constitution. Efficient causation is often unnecessary and always insufficient, even though it may be present, either [i] consequently to inherence or [ii] alongside it. [i] will be discussed below. [ii] is true when the material part of a composite is the efficient cause of the formal part, in addition to being its subject of inherence. An example would be the composite resulting from a quiddity and one of its necessary implicates (e.g., humanity and risibility, or humanity and movability), whose relation is explicable both in terms of inherence (the implicate inheres in the quiddity) and in terms of efficient causation (the implicate is caused by the quiddity).

At this point it is still an open question [2] whether inherence is exhaustive, meaning able to ground all cases of mereological constitution on its own. One passage suggests that it is not and that certain wholes are instead grounded in a specific combination of inherence and efficient causation.

> [t9] [Another possibility is that the two parts] are attributes inhering in a single entity. However, one is extensionally narrower than the other, as well as an efficient cause for it. An example is as follows. "Corruption of the mixture" and "heat" are attributes, with "corruption" being extensionally narrower than "heat" and a cause for it. Their sum is called by a single name, "fever." The genus is the extensionally ample, caused attribute, while the differentia is the extensionally narrow attribute that is the cause.
>
> (Rāzī, *Mulakhkhaṣ*, I, 315.7–11)

Here the ontological structure required for mereological constitution has two layers, not just one as in most cases. First, we have extra-part inherence: each part inheres in a single other thing which is not itself a part. Then we have infra-part causation conditioned on and consequential to extra-part inherence: one part is the efficient cause of the other, while both inhere in the same subject. Only the *combination* of infra-part causation and extra-part inherence can provide the infra-part, monodirectional dependence that al-Rāzī deems necessary for constituting a whole.

[3] Is it always the case that formal parts specifically are distinctive for their wholes, while material parts are not distinctive? Could it be that material parts are distinctive and formal parts non-distinctive, or that formal and material parts might not differ in terms of distinctiveness, each one being equally as distinctive as the other?

Al-Rāzī is explicit that distinctiveness is not necessarily specific to formal parts. It may be that the material and the formal part are equally as distinctive, the clearest example being prime matter and corporeal form: both are distinctive for the composite quiddity "body," for instance, because everything incorporeal has neither prime matter nor corporeal form.[41]

It may also be that material parts specifically are distinctive, while formal parts are not.

> [t10] [The case where] the differentia is the cause of the existence of the species' share of the genus is conceivable in two ways. The first is when the differentia is self-subsistent and the genus is its attribute, with the species consisting in their sum.
>
> (Rāzī, *Mulakhkhaṣ*, I, 315.3–6)

> [t11] When you attribute "white" to "human" and then call the sum of the two by a single name, the genus depends on the differentia while not being caused by it.
>
> (Rāzī, *Mulakhkhaṣ*, I, 316.3–4)

Let us suppose that the expression "white human" refers to a genuine whole whose parts are "white" and "human," and that the same applies to "white wall." The material part is distinctive and the formal non-distinctive, because the two wholes share in "white" while differing in the subjects of "white," which are "human" and "wall." By conceding that material parts may be distinctive, al-Rāzī explicitly abandons the Avicennian assumption that the genus-differentia structure should correspond to a hylomorphic structure in the *definiendum*'s quiddity, with a distinctive formal part inhering in a non-distinctive material part: while this assumption is often true, it is not so necessarily. Any subject-attribute structure whatsoever yields a whole.

Al-Rāzī's departure from the standard Avicennian theory goes even deeper, however. For Avicenna, in addition to being specific to formal parts, distinctiveness is context-invariant, meaning that, for any composite quiddity, one part (the formal) is always distinctive, irrespective of context (i.e., irrespective of the thing or set of things to which we happen to compare the quiddity). Al-Rāzī, on the other hand, explicitly admits that in some cases distinctiveness may be context-variant, in the sense that identifying which part of a composite quiddity is distinctive may depend on which thing or set of things to which we happen to compare the quiddity.

41 Rāzī, *Mulakhkhaṣ*, I, 312. al-Rāzī does not accept Avicenna's hylomorphic account of the quiddity "body." This does not mean that he cannot make use of it to exemplify a conceptual possibility.

> [t12] If a quiddity is constituted of two things each one of which is extensionally wider than the other in one aspect and extensionally narrower in another, then each one of the two is sometimes said as an answer to "what is it?" and sometimes said as an answer to "which is it?". An example is "animal" and "whiteness." Each one of them is extensionally wider than the other from one respect and extensionally narrower in another respect. Therefore, when we want to distinguish the quiddity composed of the two from "non-white [animal]," "animal" will be the genus and "white" the differentia. When we want to distinguish it from "non-animal [white]," "white" will be the genus and "animal" the differentia.
>
> (Rāzī, *Mulakhkhaṣ*, 1:81.4–9) [42]

Previously, we saw that formal parts must depend on the material in terms of inherence. Could it be that [4] material parts depend on the formal in terms of efficient causation? Avicenna, for one, explicitly holds that a differentia is the cause of the existence of its share of the genus or, in other words, that a form is the efficient cause (or part of the cause) of the existence of the portion of matter in which it inheres.[43]

As rightfully noted by Ibrahim,[44] al-Rāzī consistently rejects this position: the formal part can never be the efficient cause of the material. Al-Rāzī's reasoning is a complex back-and-forth whose details are only partially relevant to the present analysis. In summary, al-Rāzī presents two arguments to support his case at two different levels of generality.[45]

> [t13] An animal or vegetable body persists after the annihilation of the attributes due to which the body was an animal or a plant. Were those attribute the causes of that body's existence, it would not happen because the effect cannot persist when the cause annihilates. Additionally, [forms] inhere in bodies, so they cannot be causes for them because circularities are impossible.
>
> (Rāzī, *Mulakhkhaṣ*, 1:313.11–14)

The first argument is from the persistence of material parts and applies to the specific set of cases where formal parts come into being and cease to be. Material parts persist after the annihilation of their formal parts (e.g., the body of a horse persists after the annihilation of the horse-form, i.e., the death of the horse), and no

42 Cf. Rāzī, *al-Juz' al-awwal*, 101a–101b.

43 Avicenna, *Shifā', Ilāhiyyāt*, I, 238.

44 Ibrahim, "Beyond Atoms and Accidents," 80–95.

45 Rāzī, *Mulakhkhaṣ*, I, 313–314.

effect can persist after its efficient cause is annihilated; therefore, formal parts do not cause material parts.

The second argument is from circularity in dependence and applies generally to all cases, regardless of the temporal duration of the formal parts. Formal parts depend on material parts in terms of inherence. If the material parts depended on the formal parts in terms of causation, dependence would be circular. The formal would depend on the material and the material on the formal, which is impossible.

The main objection against this second argument hypothesizes that the formal part might inhere in the material without being dependent on it, so that there would be no circular dependence. The situation would materialize as follows. First, the formal part would cause the material part(s). Then, the inherence of the formal part in the material would be caused either by the material part or by the formal part itself, on condition of the existence of the material and as a secondary effect, dependent on the primary. In *al-Mulakhkhaṣ*, al-Rāzī admits to having no decisive answer to this objection, even though he notes that the latter is of little use to his adversaries, the defenders of the Avicennian view, in that it leads to rejecting other Avicennian doctrines.[46] In *al-Maṭālib*, however, he appeals to immediate knowledge to rule out the scenario raised by the objection: dependence is immediately included in the very concept of inherence, so a thing cannot inhere in something while being independent from it.[47]

Al-Rāzī's rejection of the formal parts' causal efficacy over material parts is particularly significant. For Avicenna, causal status is the discriminating factor between substantial forms and mere accidents: forms are causally efficacious over their subjects-of-inherence, while accidents are not. With causation out of the picture, formal parts become nothing but accidents. Al-Rāzī explicitly admits this much in *al-Mabāḥith* when he says that, according to his theory, the relation between genera (i.e., non-distinctive material parts) and their differentiae (i.e., distinctive formal parts) is ultimately the same as that between species and their *propria*.[48] In other words, every distinctive formal part of a quiddity would just be an accident specific to its material

46 It leads to rejecting that the coming-to-be of form depends on the preparation of matter, see Rāzī, *Mulakhkhas*, I, 359.

47 Rāzī, *Maṭālib*, II, 102–103.

48 Rāzī, *Mabāhith*, I, 161–162.

part(s), and every accident specific to a certain species would be the distinctive formal part of a quiddity whose non-distinctive material part is that species.

Differentiae and *propria* having the same ontological status means that the assessment of whether a certain thing is a differentia or a *proprium* is not intrinsic to the thing in itself, but rather relative to a given whole. As al-Rāzī explains, "heat" is a differentia relative to the composite quiddity "hot body" (being a part of the latter), while "lightness" is a *proprium* relative to that quiddity (being a concomitant of "heat"). The opposite holds true for "lightness" and "heat" with respect to "light body."[49]

Let us summarize what has been said thus far. [1] Inherence is required for the constitution of wholes, even though [2] efficient causation conditional on inherence may also be required. [3] Formal parts are not always distinctive for the wholes they constitute, and distinctiveness itself may be context-variant. [4] Formal parts cannot cause material parts.

Considering these four points together enables us to better understand the categorization of possible whole-yielding structures that al-Rāzī presents as his own in *al-Mulakhkhaṣ* and further refines in *al-Maṭālib*.[50] He makes explicit use of a fifth, more general principle, i.e., that causes identical in species cannot produce different effects. In mereology, the principle entails that the non-distinctive part of a quiddity cannot be the efficient cause of its distinctive part.[51]

49 Rāzī, *Mulakhkhaṣ*, I, 315–316. One might criticize al-Rāzī for making our descriptions of things as differentiae or *propria* arbitrary, based on the subjective decision to pick certain wholes as opposed to others, and not on any objective property of the things in question. This critique is misleading. Al-Rāzī merely says that being-a-differentia and being-a-*proprium* are relative. Being relative is not the same as being arbitrary, just as being monadic (non-relative) is not the same as being objective (non-arbitrary). Obviously, relative descriptions can be objective (e.g., parenthood, filiation). Accusing al-Rāzī's account of arbitrariness because describing a thing as a differentia or a *proprium* depends on which relatum we consider would be the same as accusing biology of arbitrariness because the description of an animal as a parent or a child depends on what relatum we consider.

50 Rāzī, *Mulakhkhaṣ*, I, 313–316; *al-Juz' al-awwal*, 96a–96b. While he does present another categorization as well, he describes it as based on Avicenna's doctrine that differentiae are the efficient causes of genera, a doctrine he rejects (*Mulakhkhaṣ*, I, 310–311).

51 The non-distinctive part of a quiddity is by definition present in some other quiddity. Identical causes must have identical effects. Therefore, the distinctive part, assumed to be an effect of the non-distinctive part, would be present in both quiddities, with the absurd consequence that it would not be distinctive.

Al-Rāzī's categorization employs all concepts that have been explained thus far: inherence, efficient causation, and distinctiveness. I list below only structures that are whole-yielding according to al-Rāzī. The reader should assume that, if a certain structure is not mentioned, that is because it conflicts with one of the principles presented thus far.

Type of whole-yielding structure	**Example**
(a) Infra-part inherence	
(aa) The formal part is distinctive, the material non-distinctive (none can cause the other)	
(aaa) The formal part entails no specific ordering or structure of the material	A number
(aab) The formal part entails a specific structure in the material	An artifact
(aac) The formal part entails a specific structure and specific emergent attributes in the material	An organism
(ab) The material part is distinctive, the formal non-distinctive	
(aba) The material part causes the formal	A quiddity plus an extensionally wider implicate ("movable human")
(abb) The material part does not cause the formal	A quiddity plus a separable, extensionally wider accident ("white human")
(ac) The formal and the material part do not differ in terms of distinctiveness[52]	
(aca) The material part causes the formal	A quiddity plus an extensionally equivalent implicate ("risible human")
(acb) The material part does not cause the formal	"Body" according to *falsafa* (=prime matter plus corporeal form)
(b) Infra-parts efficient causation conditional on extra-parts inherence	"Fever" (= corruption of the humor plus high temperature)

52 This type is not explicitly mentioned in al-Rāzī's categorization, but we can infer it from statements he makes in other places, for example Rāzī, *Mulakhkhaṣ*, I, 312.

4. Mereological Reductionism

Reductionism is the doctrine that the whole is individually identical to the sum of its parts, or to its parts taken together. Once one has listed all the parts of a given whole, one has exhausted that whole.

Contrary to his inherentism, Al-Rāzī's reductionism develops out of *kalām*, not *falsafa*. Indeed, many of Avicenna's statements contrast with reductionism.[53] For one, he argues that the quiddity of a hylomorphic compound is "that very composition gathering form and matter, that unity which comes-to-be from the two" (*hiya nafs hadhā l-tarkīb al-jāmiʿ li-l-ṣūra wa-l-mādda, wa-l-waḥda al-ḥāditha minhumā*).[54] He further claims one might conceive of a composite quiddity ("human") without being attentive to its parts ("rational," "animal").[55] Accepting this possibility requires accepting the whole to be something other than the sum of its parts: were they the same, conceiving of the whole as the sum of the parts would necessarily require conceiving of the parts. Additionally, non-reductionism may be required for Avicennian definitions to be informative: some difference must exist between the *definiens* (the sum of the parts figuring in the definition) and the *definiendum* (the whole to be defined); otherwise, definitions would be circular and therefore uninformative.[56]

53 Avicenna, *Shifāʾ, Ilāhiyyāt*, I, 238; Bahmanyār ibn Marzubān, *al-Taḥṣīl*, Ed. Mortaḍā Moṭahharī (Tehran: Enteshārāt-e dāneshgāh-e Tehrān, 1996), 512.

54 Avicenna, *Shifāʾ, Ilāhiyyāt*, I, 245.

55 Avicenna, *Shifāʾ, Madkhal*, 34–35.

56 Notably, al-Ṭūsī defends the *falsafa* theory of definition against al-Rāzī's critiques precisely by claiming that the whole exceeds the sum of its parts. Naṣīr al-Dīn al-Ṭūsī, *Naqḍ al-Muḥaṣṣal.* Ed. ʿAbdallah Nūrānī. (Beirut: Dār al-aḍwāʾ, 1985), 17; *Taʿdīl al-miʿyār fī naqd Tanzīl al-afkār*, in *Manṭiq va mabāḥith-i alfāẓ*, Ed. Mahdī Muḥaqqiq and Toshihiko Izutsu (Tehran: Institute of Islamic Studies McGill University–University of Tehran, 1974), 156. Most post-Rāzian authors, however, attempt to defend the informativity of real definitions in ways compatible with reductionism: Afḍal al-Dīn al-Khūnajī, *Kashf al-asrār ʿan ghawamiḍ al-afkār*, Ed. Khaled Al-Ruhayeb (Tehran: Moʾassase-ye pažūhešī-e ḥekmat va falsafe-ye Īrān – Institute of Islamic Studies, Free University of Berlin, 2010), 67; Athīr al-Dīn al-Abharī, *Tanzīl al-afkār fī taʿdīl al-asrār*, in Ṭūsī, *Taʿdīl al-miʿyār*. 155–156; *Maqāṣid*, 108a; Najm al-Dīn al-Kātibī, *al-Mufaṣṣal fī sharḥ al-Muḥaṣṣal*. Ed. Saʿīd Fūda, ʿAbd al-Jabbār Abū Sunayna and Muḥammad A. Abū Ghūsh (Amman: al-Aṣlayn li-l-dirāsāt wa-l-nashr, 2018), 60–61, 63; Aḍud al-Dīn al-Ījī, *al-Mawāqif fī ʿilm al-kalām* (Beirut: ʿĀlam al-kutub, n.d.), 13; al-Sharīf al-Jurjānī, *Sharḥ al-Mawāqif*, 8 vols, Ed. Maḥmūd ʿA. al-Dimyāṭī (Beirut: Dār al-kutub al-ʿilmiyya, 1998), I, 116–122; Quṭb al-Dīn al-Rāzī al-Taḥtānī, *Lawāmiʿ al-asrār fī sharḥ Maṭāliʿ al-anwār*, 3 vols. Ed. Abū l-Qāsim al-Raḥmānī (Tehran: Moʾassase-ye pažūheshī-e ḥekmat va falsafe-ye Īrān, 2014), 360–366. A discussion considering some of these authors has been conducted by Hassan Rezakhany ("The Arabic Meno: Some Debates on Meno's Paradox from the 13th to 15th centuries," Unpublished manuscript).

Contrary to all this, the minimalist ontology of *kalām* fits well with reductionism. If the only genuine existents are atoms, accidents, and God, no ontological category appears fit to include wholes understood as irreducible to their parts.[57] This is especially true for the Ashʿarites, who explicitly refuse to concede any genuine ontological unity even to things like organic wholes (e.g., humans).[58] The same may be said of Abū l-Ḥusayn al-Baṣrī (d.1044), if we take Ibn al-Malāḥimī (d.1141) as a faithful interpreter of his thought.[59] The situation is more complicated in the case of the Bahshamites. For one, Benevich's interpretation of their anthropology supports non-reductionism: humans are "substantial compounds," or wholes, which supervene on their material parts when these are combined.[60]

Al-Rāzī's most immediate source on reductionism is Ibn al-Malāḥimī, a follower of Abū l-Ḥusayn al-Baṣrī whose work was well known to al-Rāzī.[61] In *al-Tuḥfa*, Ibn al-Malāḥimī presents reductionism as the standard position of the *mutakallimūn* and explicitly contrasts it with non-reductionism, ascribed to the *falāsifa*.

> [t14] [The *falāsifa*] hold that, when [the parts] are combined, something comes-to-be that is neither the sum (*majmūʿ*) of the parts nor each one of them, but rather something else, which is, for example, a bed. It is as if they said that, when sugar and vinegar are mixed, something else comes-to-be out of the parts which is neither vinegar, nor honey, nor the sum of them, that thing being [the mixture called] oxymel […]. [The *mutakallimūn*] do not hold that something else comes-to-be.
>
> (Ibn al-Malāḥimī, *Tuḥfa*, 16.5–8)

57 The *kalām* category of accidents is narrower in extension than its Aristotelian counterpart. It basically includes perceptible qualities, life and life-related qualities, *akwān* (determinants of location), and *tålīf* (bodily adhesion).

58 Ayman Shihadeh, "Classical Ashʿarī Anthropology: Body, Life and Spirit," *The Muslim World* 102/3-4 (2012), 433–477.

59 For Ibn al-Malāḥimī, wholes (even organic ones) are unitary in an extrinsic or metaphorical sense. They appear unitary either because they are hard to break apart, or because they exhibit causal powers not exhibited by the parts in isolation, or because they are referents of names that do not apply to the parts in isolation. On Ibn al-Malāḥimī's doctrine of organic wholes see Francesco O. Zamboni, "Like Mending a Torn Fabric. Anthropology and Eschatology in Ibn al-Malāḥimī," *Journal of Islamic Philosophy* 15, no.1 (2024): 30–65.

60 Fedor Benevich, "Personal Identity in the Philosophy of Kalām," *Documenti e Studi sulla Tradizione Filosofica Medievale* 24 (2023): 93–114. For Benevich's interpretation to work, we would need an ontological category whose elements could account for the unity of substantial compounds. A possible candidate may be that of *aḥwāl*: a whole is unitary in the sense that its parts have a single *ḥāl*.

61 He quotes him by name in Rāzī, *Arbaʿīn*, I, 320–321.

The whole is the same as the sum of its parts, not something that supervenes on that sum. The reason is that the whole and the sum of its parts are conceptually inseparable (we cannot conceive of one without conceiving of the other), which for Ibn al-Malāḥimī entails that they are the same.[62] He explicitly rejects the hypothesis of understanding the relation between wholes and sums in terms of efficient causation, with the sum of the parts being the sufficient cause producing the existence of the whole, which would supervene on the collected parts.[63]

Interestingly, Al-Rāzī does not make use of Ibn al-Malāḥimī's deduction from conceptual inseparability, because he deems its decisive premise (all conceptually inseparable things are identical) false, as counterexamples can be produced against it; for instance, co-relative accidents like "father" and "son" are inseparable despite being distinct.[64] Al-Rāzī's own argument boils down to two premises. The first is that there are only three conceivable relations between a whole and the sum of the parts: identity (they are the same), inclusion (the whole includes the sum), and externality (the whole and the sum are extrinsic to one another). The second premise is that inclusion and separation are immediately known to be false.

> [t15] The sum of the parts of a quiddity is either identical to that quiddity, internal to it, or external to it. [...] The second and the third option are absurd because, first of all, we have immediate knowledge that the sum of the parts of a quiddity cannot be one of its parts or something external to the quiddity.
>
> (Rāzī, *Mulakhkhaṣ*, I, 98.5–9)

Al-Rāzī's reductionism is highly consequential for the two most important properties describing part-to-whole relations, i.e., the parts' priority to the whole in both conception and in existence, which I previously explicated as monodirectional dependence (the whole depends on the parts; the parts do not depend on the whole).[65] Reductionism allows only for a specific understanding of priority in conception and existence.

62 Rukn al-Dīn Ibn al-Malāḥimī, *Tuḥfat al-mutakallimūn fī al-radd ʿalā al-falāsifa*. Ed. Hassan Ansari and Wilferd Madelung (Tehran: Iranian Institute of Philosophy-Institute of Islamic Studies Free University of Berlin, 2008).

63 Ibn al-Malāḥimī, *Tuḥfa*, 30.

64 Rāzī, *Mabāḥith*, I, 119.

65 See the second section.

We need to distinguish between [a] collective and [b] distributive priority. [a] means that, when we take all the parts of a whole together, we can describe them as prior to the whole in conception and in existence. [b] means that, when we take each of the parts in isolation, we can describe a given part as prior to the whole, again in conception and in existence.

Reductionism does not allow for [a] because "all the parts taken together" is the same thing as "the whole," and something cannot be prior to itself. Al-Rāzī consistently presents this reasoning as part of his case that real definitions are uninformative and do not expand our knowledge. A definition should explicate its *definiendum* by listing all the parts of its quiddity, but this list is uninformative precisely because a quiddity is the same as all its parts.

> [t16] [The *definiens*] would have to consist either in the sum of the thing's parts or in only some of them. The former must be wrong, since the sum of a thing's parts is that very thing itself. Hence, were we to deem the sum of its parts its *definiens*, one and the same thing would be its own *definiens*, which is absurd.
>
> (Rāzī, *al-Juz' al-awwal min al-Maṭālib*, 31a.1–4)

The absurdity al-Rāzī refers to is a form of circularity. The *definiens* is prior to the *definiendum*. Were a thing its own *definiens*, that thing would be prior to itself.

At this point, one may argue that reductionism is ultimately a sort of mereological nihilism: the whole as such is completely non-existent; only the parts exist. Such "mereological collapse" would endanger al-Rāzī's own position, which requires some degree of distinction between parts and whole precisely because it supports the priority of the former over the latter. Something cannot be prior in existence to itself or to something non-existent. al-Rāzī presents the problem as follows.

> [t17] You said that the existence of a [composite] quiddity depends on the existence of its parts. However, the parts of a quiddity are the same as that quiddity. Therefore, the quiddity would depend on itself, which is absurd.
>
> (Rāzī, *Sharḥ 'Uyun*, I, 61.6–8)

While al-Rāzī formulates it with respect to existence specifically, the problem applies to dependence in conception as well. If a composite quiddity were the same as its parts, its conception could not depend on the conception of the parts, because knowing a thing cannot be dependent on knowing that very thing.

Al-Rāzī's solution appeals to the distinction between [a] collective and [b] distributive priority. Saying that [a] the sum of the parts is prior to the whole (collective priority) is absurd because it leads to something (the sum of the parts) being prior to itself (the whole). On the other hand, saying that [b] each one of the parts is prior to the whole is not absurd, because something (each one of the parts taken in isolation) is prior to something other than itself (the sum of the parts, i.e., the whole).

For al-Rāzī, no single relation of priority holds between "the whole" and "the sum of the parts," for these two are the same. We actually have multiple relations of priority, each one of which holds between the whole and one specific part.

For example, let us take a whole made of two parts, part-1 and part-2. Saying "The two parts are prior to the whole" or "The whole depends on the two parts" would be an imprecise formulation whose precise explication is the following conjunctive: "Part-1 is prior to the whole and part-2 is prior to the whole".

5. The Dilemma of Multi-Location

Mono-located accidents are accidents whose numerical singularity and multiplicity strictly follow those of their subjects. One subject, one accident. Multiple subjects, multiple accidents. One example is colors, according to *kalām* atomism. Each instance of blackness may inhere in one and only one atom. By contrast, a multi-located accident can be numerically singular while inhering in multiple, numerically distinct subjects. An example would be the specific unity of a given number according to *falsafa*: ten-ness inheres in all unit values at once.

Al-Rāzī's attitude toward multi-located accidents is deeply problematic. In general terms, he explicitly rejects their existence, agreeing with a view common in both *falsafa* and *kalām*.[66] The rejection of multi-location is particularly significant

66 Ibn Fūrak ascribes the "no irreducible accident" rule to al-Ashʿarī himself (Abū Bakr Ibn Fūrak, *Mujarrad maqālāt al-shaykh Abī l-Ḥasan al-Ashʿarī*, Ed. Aḥmad ʿA. Sāyih [Cairo: Maktabat al-thaqāfa al-dīniyya, 2005], 212). The same doctrine is supported by Abū Ḥusayn al-Baṣrī and Ibn al-Malāḥimī (Ruḳn al-Dīn Ibn al-Malāḥimī, *al-Muʿtamad fī uṣūl al-dīn*. Ed. Wilferd Madelung and Martin McDermott [London: al-Hudā, 1991], 133–134). Avicenna explicitly rejects the possibility of a single accident existing in two subjects (*Shifāʾ*, *Ilāhiyyāt*, I, 155), the caveat being that, for Avicenna, accidents differ from substantial forms, so the rule in question may not apply to substantial forms. However, both traditions include minority positions that do allow for irreducible accidents.

for al-Rāzī, as we find it used in multiple different contexts throughout his texts.[67] That being said, in certain cases he appears to believe that determinate accidents are self-evidently multi-located, so much as to represent genuine examples in favor of multi-location.[68]

More specifically, the rejection of multi-location represents a crucial problem for al-Rāzī's mereology: it can be shown that the attributes required for the constitution of wholes (most formal parts) or entailed by it (wholeness, the unity of wholes, the existence of wholes) must be multi-located.

Before delving into this problem, however, we need to understand al-Rāzī's case against irreducible accidents, which draws on Abū l- Ḥusayn al-Baṣrī.[69] He appeals both to immediate knowledge (we intuitively know that an accident cannot be in two subjects) and to two deductive arguments. The first and most important of these is based on the fact that a multi-located accident would be indiscernible from the sum of two mono-located counterparts.

> [t18] If we posited that two accidents inhere in the two subjects, the two accidents would be tantamount to one accident inhering in two subjects-of-inherence, leading to the impossibility of discriminating two from one, which is absurd. Therefore, a single accident cannot inhere in two subjects-of-inherence.
>
> (Rāzī, *Mabāḥith*, I, 258.6–259.1)

Some early *falāsifa* believe every symmetrical relation (e.g., brotherhood, proximity) to be a single irreducible accident inhering in both relata (see Avicenna, *Shifāʾ*, *Ilāhiyyāt*, I, 154–155; Rāzī, *Muḥaṣṣal*, 115). Additionally, most Bahshamites hold that adhesion (*Tālīf*), the accident grounding the solidity of bodies, inheres in two atoms at the same time (Ibn Mattawayh, *al-Tadhkira fī aḥkām al-jawāhir wa-l-aʿrāḍ*, Ed. Daniel Gimaret [Cairo: Institut français d'archéologie orientale, 2009], 289; Nīsābūrī, *al-Masāʾil fī l-khilaf bayna al-baṣriyyīn wa-l-baghdādiyyīn*. Ed. Maʿn Ziyada and Riḍwān Sayyid [Beirut: Maʿhad al-inmāʾ al-ʿarabī, 1979], 219; Rāzī, *Muḥaṣṣal*, 115). According to Ibn Mattawayh, the first to hold this position was Abū l-Hudhayl (d. around 845).

67 The "no irreducible accident" rule is behind the following positions taken by al-Rāzī: [i] the specific formal unity of a number cannot inhere in all the unit values that constitute such number (*Mulakhkhaṣ*, I, 326); [ii] the (single) causal efficacy of a cause cannot inhere in both its existence and its quiddity (*Maṭālib*, I, 157–158); [iii] the single corporeal form of a continuous body cannot inhere in multiple bits of matter at the same time (*Mabāḥith*, I, 172–173); [iv] a single existence cannot inhere in all the parts of a composite quiddity at the same time (*Mulakhkhaṣ*, I, 310).

68 See Rāzī, *Mulakhkhaṣ*, I, 57; *al-Juzʾ al-awwal*, 57b.

69 See Rāzī, *Mabāḥith*, I, 258–259; *Muḥaṣṣal*, 115; *Mulakhkhaṣ*, I, 357–358. The set of arguments presented by al-Rāzī is explicitly ascribed to al-Baṣrī by Ibn al-Malāḥimī (*Muʿtamad*, 133–134).

The argument starts by hypothesizing that a single multi-located accident is replaced by two mono-located counterparts. al-Rāzī's subsequent remark is that "the two accidents qua two would be tantamount to one accident" (*lam yakun ḥāl al-ʿaraḍayn fī l-ithnayniyya illā ka-ḥāl al-ʿaraḍ al-wāḥid*), meaning that the mono-located counterparts *taken together* would have the exact same properties as the single multi-located accident they replaced (with the obvious exception of unity in number). For example, two mono-located accidents of blackness existing in two parts of a surface would produce exactly the same perceptual experience as a single multi-located accident of blackness existing in both parts. Given this identity in properties, one multi-located accident would be indiscernible from the two mono-located counterparts, which is absurd. While al-Rāzī does not explicitly address the exact nature of the indiscernibility in question, the framing of the argument entails that it is epistemic indiscernibility, not ontological indiscernibility: we would have no way of knowing whether the accident in question is tantamount to two things or just one. This contradicts the immediate knowledge that we can indeed discern between two things and one.

A second, ancillary argument against multi-located accidents draws an analogy between the case of accidents and their subjects on the one hand, and that of bodies and their places on the other. Were it possible for a single accident to inhere in two subjects at the same time, it would be possible for a single body to be in two places at the same time.

Certain *mutakallimūn* would consider the argument stronger than a mere analogy because their notion of inherence is essentially connected to space-occupation, being a qualified mode of space-occupation. More specifically, they understand inherence as consequential or derivative space-occupation: inherence in a subject means occupying a certain space consequentially to the subject occupying that space.[70]

Al-Rāzī does not share this understanding, however: he decisively rejects such a conception of inherence, arguing that the latter means *ikhtisāṣ shayʾin li-shayʾin bi-ḥaythu yaṣīru aḥaduhumā manʿūtan bi-l-ākhar* (specification in the manner of description).[71] Therefore, his ground for drawing the analogy between space-occu-

70 Rāzī, *Mabāḥith*, I, 256.

71 Rāzī, *Mabāḥith*, I, 257.

pation and inherence is opaque.[72] My interpretation is that, for al-Rāzī, inherence and space-occupation share in being markers of multiplication: they are relations connecting entities (accidents/bodies) to locations (subjects/places) in such a way that the numerical status of the entities (singular/plural) can be deduced from the numerical status of the locations. One location, one entity. Many locations, many entities. Al-Rāzī would be saying that the same rule applies to both inherence and space-occupation and so, if we reject the rule in the case of inherence (allowing for multi-located accidents), then we could do the same in the case of space-occupation (allowing for multi-located bodies).

The rejection of multi-location is problematic for al-Rāzī's mereology because it conflicts with inherentism and, more generally, leads to the rejection of whole-related attributes.

The most intuitive types of wholes are organisms, mixtures, artifacts, and geometrical figures. Based on al-Rāzī's inherentism, all these cases share the same kind of structure, meaning that they have multiple, non-distinctive material parts and a single, distinctive formal part, what al-Rāzī often calls a "combinatory structure" (*hay'a ijtimā'iyya*). These combinatory structures must be multi-located accidents. First, they inhere in subjects, and for al-Rāzī everything that inheres in a subject is an accident. Second, they inhere not in one or each one of the material parts in isolation, but rather in all of them together (e.g., tableness inheres in all bits of wood together, not in one bit or in each one in isolation). If these types of formal parts are multi-located, and multi-located accidents are impossible, then many things we intuitively consider wholes are not wholes at all, because they lack formal parts.

The problems are not over for al-Rāzī, as he notes that the properties of wholes qua wholes are irreducible accidents as well. The unity of a whole inheres in all its parts together, not in one of them or in each one of them in isolation. The same goes for the existence of the whole, if we are to discriminate it from that of the parts in any way. The very property of *kulliyya* (wholeness), or being a whole, is irreducible by definition.

72 Al-Kātibī, for one, laments that the analogy is unjustified, in *al-Munaṣṣaṣ fī sharḥ al-Mulakhkhaṣ*. MS Istanbul, Köprülü Kütüphanesi, Fazıl Ahmed, 888, 164b.

> [t19] When those parts combine, do they acquire a unity [they did not have before]? If all of them acquired it, a single accident would inhere in many subjects, which is absurd. If each one acquired a portion of it, unity would divide. If they did not acquire any unity at all, their combination would not result in a unitary quiddity, and so the simples would not be parts of anything.
>
> (Rāzī, *Mulakhkhaṣ*, I, 61.9–12)[73]

Al-Rāzī presents two weak attempts at solving the incompatibility between the rejection of multi-location and the support for combinatory structures and other whole-related attributes. The first suggests that combinatory structures are not multi-located because their subjects are unitary: for instance, it is not the case that a single triangularity inheres in the many parts of a triangle; rather, triangularity inheres in the triangle taken as a whole, which is unitary. As al-Rāzī himself notes, all this solution achieves is to repropose the same problem one step further, as the unity of the whole would itself be a multi-located accident inhering in many parts.[74]

The second attempt goes in an opposite but equally fruitless direction. Whole-related accidents are not multi-located because they are not simple; they are wholes themselves. They are composed of pluralities of parts that correspond to the pluralities of their subjects: "triangularity" is a whole composed of multiple accidents, each one of which inheres in one of the parts of the triangle.[75] This second solution has basically the same problem as the first, for the accidents in question would themselves be wholes, thereby requiring multi-located accidents (second-order combinatory structures, unity, existence, etc.).

In sum, al-Rāzī offers no adequate way of reconciling "no multi-located accident" with the existence of combinatory structures and other whole-related accidents. However, he appears to deem belief in the latter at least as justified as belief in the former, if not more so. Just as he sometimes assumes "no multi-located accidents" against the existence of combinatory structures, other times he assumes the existence of combinatory structures as a counterexample against "no multi-located accidents."[76]

73 Cf. Rāzī, *Mabāḥith*, I, 259; *Mulakhkhaṣ*, I, 310.

74 Rāzī, *Mabāḥith*, I, 259.

75 Rāzī, *Mabāḥith*, I, 261.

76 Rāzī, *al-Juz' al-awwal*, 57b; *Mulakhkhaṣ*, I, 57.

The resulting situation is antinomic: we have inferential chains leading to contradictory conclusions. Al-Rāzī appears unable to formulate a final adjudication of the relevant intuitions and decide for one side of the antinomy over the other. All of the foregoing indicates that we have an unresolved antinomy, like others in al-Rāzī's thought (e.g., the knowability of non-existence). The interesting difference is that here the antinomy is left implicit, instead of being explicitly thematized.

Concluding Remarks

The paper has offered a detailed account of al-Rāzī's mereology. Its main findings can be summarized as follows.

First, the paper has distinguished between mereological concepts ("parthood"; "wholeness") and mereological entities (the things that are parts; the things that are wholes). This distinction—not explicitly thematized in al-Rāzī's texts but arguably implicit in them—allows us to resolve an apparent inconsistency between two of al-Rāzī's positions. On the one hand, parthood and wholeness are co-relative, hence conceptually on a par. On the other hand, parts are conceptually prior to the wholes they constitute. No contradiction arises because conceptual parity concerns mereological concepts, while priority and posteriority concern mereological entities.

Second, the paper has listed the properties of mereological entities. Three points are worth recalling here. For one, al-Rāzī deems the combination of priority in conception and priority in existence (to the whole) to be a coextensive *proprium* of any part qua part. Every part of a whole is conceptually and existentially prior to that whole, and everything prior to something in both concept and existence is a part of that something. Secondly, we noted a contradiction between this commitment and the doctrine that objects can have potentially existent parts, typical of *falsafa* mereology and present in some Rāzian works. The best way of resolving this problem is highlighting that, ultimately, al-Rāzī abandoned that aspect of *falsafa* mereology as he finally opted for atomism against the infinite divisibility of bodies. Finally, al-Rāzī holds that there cannot be wholes composed of infinitely many parts, but he appears to have no decisive argument to back this claim, as he himself admits that the argument from the unknowability of infinites is insufficient. He is able to prove wholes cannot have infinitely many *essentially ordered* parts (e.g., a species with infinitely many genera), but this does not exhaust the set of all possible infinite wholes (e.g., infinite numbers, infinitely extended bodies).

Third, the paper has shown how, in al-Rāzī's mereology, wholes require a relation of mono-directional dependence to hold between one part and the other(s). This relation is usually inherence, although in some peculiar cases it may be efficient causation between one part and the others, conditioned on inherence holding between all the parts and something else. Although al-Rāzī's inherentism draws on the hylomorphism of the *falāsifa*, he consistently rejects their distinction between accidents and substantial forms, because it would entail circularity in dependence, as well as their assumption that formal parts must always be epistemically distinctive.

Fourth, the paper has examined al-Rāzī's reductionism: the whole reduces to the sum of its parts. This position, which draws on previous *kalām* sources and especially Ibn al-Malāḥimī, explains why al-Rāzī deems complete definitions uninformative: knowing all the parts (e.g., "rational," "animal") is just the same as knowing the whole ("human"). Reductionism is compatible with the aforementioned *proprium* of parts—priority to the whole in conception and existence—provided that we understand priority as distributive and not as collective: priority describes each part taken in isolation, not all parts taken together. "All parts taken together" are the same as the whole.

Finally, the paper has shown how al-Rāzī's mereology is at odds with his commitment to the "no multi-located accidents" rule, which is grounded in the argument from indiscernibility (a single multi-located accident would be indiscernible from two mono-located accidents). Combinatory structures (a type of formal parts) must be multi-located, and the same goes for all properties of wholes qua wholes (their existence, unity, etc.). I have found no evidence that al-Rāzī managed to solve this dilemma.

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