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**Title:** Avicenna's Outsourced Rationalism

**Year:** 2020

**Version:** Accepted version (Final draft)

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**Please cite the original version:**

Kaukua, J. (2020). Avicenna's Outsourced Rationalism. *Journal of the History of Philosophy*, 58(2), 215-240. <https://doi.org/10.1353/hph.2020.0037>

## Avicenna's Outsourced Rationalism

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[Forthcoming in *Journal of the History of Philosophy*. Copyright 2019 *Journal of the History of Philosophy*.]

In a seminal and highly influential study, Werner Jaeger presented the development of Aristotle, or Aristotelianism, as the emergence of an empiricist alternative to the rationalist fold of Plato and Platonism.<sup>1</sup> Pitting perceived phenomena against the recollection of innate ideas, Aristotle founded knowledge on the perception of universal features and regularities in concrete things instead of an intuitive access to a separate world of incorporeal forms. In close analysis, such a straightforward opposition is forced, of course, and sets aside a number of complicated questions of interpretation. To say nothing of Plato, Aristotle's alleged empiricism stands in rather stark contrast to the axiomatic tendencies in his theory of science as well as the bold essentialism of his metaphysics, and while these features need not be irreconcilable,<sup>2</sup> it is safe to say that they constitute a tension in the Aristotelian theory of knowledge.

This tension finds a peculiar echo in Avicenna, who seems to give two contrary explanations for our capacity to acquire universal knowledge. On the one hand, he conceives of knowledge, or perception (*idrāk*) in the most general sense of the term, as a series of increasing levels of cognitive abstraction (*tajrīd*) of forms from matter and material accidents, which culminates in the intellection of universal essences reduced to their constitutive features. The process of abstraction is largely performed by the individual human soul's cognitive capacities, the external and the so-called internal senses, and the detailed attention Avicenna pays to the different stages of the process strongly suggests that he cherished the empiricist tendencies of his Aristotelian heritage. This, however, is countered by explicit statements according to which emanation (*fayḍ*) from or conjunction (*ittiṣāl*) with the separate active intellect is crucial for human intellection, and that in this regard the individual soul has a predominantly receptive role to play.

The two explanations have recently given rise to a vigorous debate between two camps of scholars, conveniently termed "emanationist" and "abstractionist."<sup>3</sup> My immediate purpose here is not to

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<sup>1</sup> Jaeger, *Aristotle*, 401–6. Yet Jaeger also recognized the intimate connection between the mature Aristotle and his teacher: "In its finiteness Aristotle's world is identical with Plato's, but the contrast between the two realms . . . is gone, and now the visible cosmos itself shines with Platonic colours" (390).

<sup>2</sup> For two reconciliatory interpretations, see Michael Frede, "Aristotle's Rationalism"; and David Bronstein, *Aristotle on Knowledge and Learning*.

<sup>3</sup> For emanationist interpretations, traditionally the mainstream position, see Étienne Gilson, "Les sources gréco-arabes de l'augustinisme avicennisant," 64–74; Fazlur Rahman, *Prophecy in Islam*, 15; Farid Jabre, "Le sens de l'abstraction chez Avicenne"; Herbert A. Davidson, *Alfarabi, Avicenna, and Averroes, On Intellect*, 83–94;

corroborate either camp;<sup>4</sup> instead, I want to discuss a related but distinct question raised by one of the most vocal proponents of abstractionism. In a polemic recent paper, Dimitri Gutas argues that Avicenna not only held the abstractionist view but also was a full-blown Lockean empiricist, and that accordingly, there is nothing particularly modern about early modern empiricism. Gutas's case is rather straightforward: taking his cue from Avicenna's classification of principles of knowledge, he shows that they can all be traced back to sense perception. In conclusion, he claims it is clear, "first, that if Locke's 'philosophy of mind and cognition' is empiricist, so is Avicenna's; second, if this is true, that Locke's presentation of such a philosophy was not done 'for the first time' by him but that he had a precursor in Avicenna; and third, if the second is true, that the thrust of Locke's empiricism is in line primarily with the past, not the future, whatever the future of it was going to be."<sup>5</sup>

Apart from being historiographically more ambitious, the claim concerning Avicenna's empiricism also invites a consideration of Avicenna's theory of knowledge in the broader framework of his philosophy. This broader framework provides a perspective that allows us better to appreciate whether Avicenna's theory of abstraction was a move toward a more radical empiricism than anything his Aristotelian predecessors had proposed. In the following, I will argue that Gutas's extreme claim should be rejected on the grounds of this broader framework and quite independently of the debate concerning abstraction.<sup>6</sup> I will also maintain that instead of a Lockean empiricist, Avicenna should be read as a rationalist, albeit one who has "outsourced" the principles of knowledge in a sense that I will elaborate in due course.<sup>7</sup> The question of empiricism is also relevant to two hitherto undiscussed texts that might

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Deborah L. Black, "Avicenna on the Ontological and Epistemic Status of Fictional Beings"; eadem, "Psychology: Soul and Intellect"; eadem, "How Do We Acquire Concepts?"; Cristina D'Ancona, "Degrees of Abstraction in Avicenna"; Olga Lizzini, "L'âme chez Avicenne"; Tommaso Alpina, "Intellectual Knowledge, Active Intellect and Intellectual Memory"; and Richard C. Taylor, "Avicenna and the Issue of the Intellectual Abstraction of Intelligibles." The abstractionist challenge was initially presented by Dimitri Gutas and Dag Hasse: Gutas, "Avicenna, *De anima* (V 6)"; idem, "Intuition and Thinking"; idem, "The Empiricism of Avicenna"; Hasse, "Avicenna on Abstraction"; and idem, "Avicenna's Epistemological Optimism"; see also Jon McGinnis, "Making Abstraction Less Abstract."

<sup>4</sup> For the record, I endorse a moderate form of emanationism (as, in fact, do most emanationist interpreters today), according to which the operations of the internal senses are necessary, albeit not sufficient, conditions for intellection. In my view, Avicenna's straightforward statements in support of the active intellect's substantial role are sufficient evidence for the ineliminability of emanation from his theory of knowledge; see, especially, Avicenna, *Shifā': Nafs*, Book V, Chapter 5, 234–36 (references to this work are according to book and chapter number in Fazlur Rahman's edition). To be fair, the abstractionists have recognized and tackled this challenge; see, for instance, Hasse, "Avicenna on Abstraction," 53–58, but cf. Alpina, "Intellectual Knowledge, Active Intellect and Intellectual Memory," 141–142; Black, "How Do We Acquire Concepts?"; and Taylor, "Avicenna and the Issue of the Intellectual Abstraction of Intelligibles," 68–70.

<sup>5</sup> Gutas, "The Empiricism of Avicenna," 424. Gutas also entertains the possibility that Locke's empiricism was spurred by his acquaintance with Avicenna's works (423–25).

<sup>6</sup> For a concise formulation of a similar insight, see Richard C. Taylor, "The Epistemology of Abstraction," 279.

<sup>7</sup> Thus, in the foregoing I will not be concerned with the details of Gutas's argument. This is not fatal to my point because I agree with the central claim that all principles of knowledge Avicenna recognizes are ultimately derived from sense perception. However, as I will argue in the foregoing, this observation is simply insufficient evidence for reconstructing Avicenna as a Lockean empiricist.

seem to corroborate the claim that Avicenna was heralding Locke. Especially the latter of these, a set of passages from the late *Ta'liqāt*, suggest that Avicenna's epistemological heritage may not have been uniform, and that he may have harbored empiricist concerns that were much more radical than the standard theory of knowledge exposed in his most important philosophical *summae*. These passages allow us to consider the possibility that Avicenna never developed his epistemological insights to their full bloom in a new systematic theory of knowledge, and that he may have left his recipients with a mixed heritage that could ultimately be used as a point of departure from the epistemological optimism of Peripatetic philosophy.

In the following, I will begin with a concise account of what I take to be some key elements of a historically accurate Lockean empiricism.<sup>8</sup> I then move on to consider Avicenna's standard epistemology within its natural metaphysical setting in order to argue that the standard theory fails to meet the criteria for such a robust empiricism. I will then proceed to discuss the new pieces of evidence, and conclude with a brief reflection on the broader context of this mixed inheritance.

### 1. What Is Lockean Empiricism?

If we reduce Locke's empiricism to the view that the human soul is created as a blank slate, without any innate ideas, and that consequently the entire process of knowledge acquisition is instigated by sense perception, there remains little room for debate. The evidence is abundant that Avicenna held a similar view—in fact, I am not aware of a single serious interpretation that would contest this.<sup>9</sup> However, it is quite another matter whether such a level of generality does justice to Locke's concerns. Let us unpack some of these concerns by means of an illustrative passage from the introduction to the first book of the *Essay Concerning Human Understanding*:

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<sup>8</sup> Since the focus of this paper is on Avicenna, my objective is best met by giving as uncontroversial an account as possible of Locke's thought. For this reason, I engage with secondary literature only in passing, mostly in order to provide references that engage in a more profound analysis of the topics I introduce. As far as I can see, the controversies in Locke scholarship do not have an immediate effect on what I say.

<sup>9</sup> One might wonder whether self-awareness is an exception to this rule—after all, Avicenna's notorious thought experiment of the flying man insists that one would be aware of one's own existence even in the absence of any mental content (Avicenna, *Shifā': Nafs*, I.1, 16). If that were the case, Avicenna might have endorsed Leibniz's counterargument to Locke, namely that the soul is not a blank slate because it knows itself by default (G. W. F. Leibniz, *Nouveaux essais*, Book II, Chapter 1, 111; references to this work are according to book and chapter number in the edition by André Robinet and Heinrich Schepers). In my view, however, Avicenna denies that self-awareness presents us with any specific mental *content*. Instead, it is best characterized as a particular first-personal perspective to any possible content. I argue for this view, as well against a more content-oriented interpretation, at length in Jari Kaukua, *Self-Awareness in Islamic Philosophy*, 30–103; cf., however, Peter Adamson and Fedor Benevich, "The Thought Experimental Method."

This was that which gave the first *Rise* to this Essay concerning the Understanding. For I thought that the first Step towards satisfying several Enquiries the Mind of Man was very apt to run into, was, to take a Survey of our own Understandings, examine our own Powers, and see to what Things they were adapted. Till that was done I suspected we began at the wrong end, and in vain sought for Satisfaction in a quiet and sure Possession of Truths that most concern'd us, whilst we let loose our Thoughts into the vast Ocean of *Being*; as if all that boundless Extent were the natural, and undoubted Possession of our Understandings, wherein there was nothing exempt from its Decisions, or that escaped its Comprehension. Thus Men, extending their Enquiries beyond their Capacities, and letting their Thoughts wander into those depths, where they can find no sure Footing, 'tis no Wonder, that they raise Questions and multiply Disputes, which never coming to any clear Resolution, are proper only to continue and increase their Doubts, and to confirm them at last in perfect Scepticism. Whereas were the Capacities of our Understandings well considered, the Extent of our Knowledge once discovered, and the Horizon found, which sets the Bounds between the enlightned and dark Parts of Things; between what is, and what is not comprehensible by us, Men would perhaps with less scruple acquiesce in the avow'd Ignorance of the one, and employ their Thoughts and Discourse, with more Advantage and Satisfaction in the other. (Locke, *Essay*, Book I, Introduction, Section 7, 46–47)<sup>10</sup>

This text signals a combination of ideas that are crucial appendices to Locke's denial of innatism and that we should take into account in the comparison with Avicenna's empiricism. Each of these ideas is amply developed in subsequent books of the *Essay*, and I am under no illusion of doing full justice to them here. My point is only to indicate how they jointly constitute a considerably more robust kind of empiricism than the mere statement of the mind's initial emptiness.

First, Locke here entertains the idea of a fundamental veil between our minds and the world and explicitly recognizes the ensuing challenge of global, or "perfect Scepticism." In the later books of the *Essay*, this skepticism is especially directed at our knowledge of real essences that are supposed to causally explain the properties of their individual instantiations. Locke concurs, holding that at best we can acquire nominal essences, which our minds abstract from perceived similarities between phenomenal objects.<sup>11</sup> This already anticipates the second point, namely, Locke's proposal to answer the challenge of skepticism by raising epistemology to the status of first philosophy, that is, by founding philosophy and the scientific explanation of the world on "a Survey of our own Understandings" and a

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<sup>10</sup> References to this work are according to book, chapter, and section number in Peter Nidditch's edition.

<sup>11</sup> See, for instance, Locke, *Essay*, II.xxiii.11–12, 301–2; II.xxiii.28, 312; II.xxxi.6, 378–80; III.iii.12–13, 414–15; III.iii.15, 417; III.iii.17, 418; III.vi.9, 444; IV.ii.14, 537; and IV.vi.12–16, 588–90. It is a matter of scholarly debate whether Locke endorsed global skepticism and the claim that the extramental world is radically unknowable by us. For examples of the opposite views, see John W. Yolton, *Locke and the Compass of Human Understanding*, especially 44–75, according to whom Locke is a scientific realist, and Nicholas Jolley, *Locke*, according to whom Locke emphasizes the limitations of human knowledge in order to clear ground for ethics. A moderate view (as well as a recent summary of the earlier debate) is articulated by Matthew Priselac, *Locke's Science of Knowledge*, 155–92, who reconstructs Locke's theory of ideas as an answer to extreme skepticism that tries to save the distinction between knowledge and less secure epistemic attitudes. My point here is not to take a stand on this question but simply to make the neutral observation that Locke, unlike Avicenna, recognizes the threat of global skepticism and develops his epistemology in reaction to it.

careful examination of the operation and reach of our cognitive capacities. One of the central tasks in the *Essay* is to show how our nominal essences are grounded in what Locke calls complex ideas,<sup>12</sup> and how the complex ideas are in turn derived by various mental operations from simple ideas, such as our sensations of concrete colors, sounds, and so forth.<sup>13</sup> Finally, all of this results in a principled epistemological resignation, or the need to “acquiesce in the avow’d Ignorance of” what must remain inaccessible to us, but also an invigorated employment of our “Thoughts and Discourse, with more Advantage and Satisfaction,” in that which we can attain.

Thus, the strategy of replacing metaphysics with epistemology as first philosophy has a very specific meaning for Locke. For him, a proper epistemological foundation cannot consist in just a set of arguments for the possibility of knowledge; indeed, it is difficult to see how such arguments could be given without making unwarranted assumptions of a metaphysical nature. Instead, epistemology must consist in a genetic account of the formation of our ideas and concepts. To put this in another way, a general psychological theory of the emergence of intellectual concepts from sense perception is not enough, for we must also show how each theoretical concept is grounded in perceptual concepts. Thus, the idea that the mind is a blank slate is only the formal beginning for Locke, and his main preoccupation is with the analysis of the ideas founded on its first contents. This, in turn, ties in with the first concern with skepticism. The moral Locke draws from the sceptic is his vehement opposition to realism about the universal concepts the scholastic Aristotelians took for foundations of scientific explanation. Grounding the genetic account of concepts in the real essences of extramental entities is humanly impossible, because in order to know reliably the causal relation between a single sensation and its extramental source, we would have to know all of the circumstantial conditions affecting such a relation—and ultimately the entire universe, for where can we draw a line in a way that is not arbitrary?

<sup>14</sup> Instead of representations of real essences, the universals are mental notions that we employ to classify perceptual phenomena and their combinations, and consequently, we are not warranted to

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<sup>12</sup> The complex ideas are of three kinds: modes, or simple phenomenal ideas conceived as belonging to another thing; substances, or the bearers of modes; and relations between ideas (Locke, *Essay*, II.xxii.3–7, 164–66).

<sup>13</sup> For the relevant mental operations of memory, comparison, composition, abstraction, and comparison, see Locke, *Essay*, II.x.8–10, 153–55; II.xi.4, 157; II.xi.6–7, 158; and II.xi.9, 159, respectively. A brief account of the derivation of an abstract concept like ‘man’ is given in III.iii.7–8, 411–12. Priselac, *Locke’s Science of Knowledge*, 7, calls this theory a form of constructivism.

<sup>14</sup> See, especially, the long section in Locke, *Essay*, IV.vi.11–16, 585–95; and cf. IV.iii.24–25, 554–56; IV.vi.5, 581; IV.xii.10, 645. For discussion, see Margaret J. Osler, “John Locke and the Changing Ideal of Scientific Knowledge”; G. A. J. Rogers, “The System of Locke and Newton,” 230–33; Margaret Dauber Wilson, “Superadded Properties,” 203–5; and Hylarie Kochiras, “Locke’s Philosophy of Science,” section 2.2. Locke does, however, admit that we can acquire certain knowledge of mathematical and moral principles (*Essay*, IV.iii.18, 549–50; IV.iii.29, 559–60), relations between our ideas (IV.iii.14, 546; for instance, we can know that having a spatial figure entails extendedness), and the factual existence of *something* extramental that causes our sensations (IV.ii.14, 537; II.xi.3, 631–32). Finally, he holds that God and the angels may know real essences, even if this were humanly impossible (III.vi.3, 440; III.xi.22, 520).

believe that the constitution of our concepts matches with the constitution of extramental things.<sup>15</sup> However, the resignation this leads to is not skeptical despair but closer to an attitude we would today call fallibilist. As Locke himself put it, we must confine to tracking empirical regularities, and instead of aiming at certainty, “content with Probability.”<sup>16</sup>

Now, a strong anti-realism about universals is by no means a necessary consequence of the idea that all our knowledge is derived from sense perception. I do think, however, that principled skepticism concerning our capacity to grasp the constitution of reality by means of our concepts is an essential feature of the specific version of empiricism that Locke inaugurated and that heralds the fallibilist theories of science that are so prominent today.<sup>17</sup> If that is the case, a concept of empiricism that neglects these features is not only an inaccurate account of Locke but also historically quite uninformative. Indeed, such a broad notion of empiricism would seem to pre-empt the question of Locke’s originality, for it seems quite uncontroversial that Aristotle already was an empiricist in the narrow sense of denying innate ideas in the human mind. Hence, in the forthcoming we will take Lockean empiricism to include not only the denial of innate ideas and the related genetic account of the formation of complex ideas and concepts, but also Locke’s methodological suspicion, or fallibilism, about our knowledge of the essential constituents of extramental reality.

## 2. Avicenna’s Standard Theory: Abstraction of Forms and Formal Identity

Avicenna’s endorsement of the Aristotelian principle that the emergence of human intellection depends on sense perception is clearly stated in the last chapter of the *Burhān* of the *Shifā’*. Modelled on the concluding chapter of the *Posterior Analytics*, this text addresses the question of how we acquire the first principles of demonstrative knowledge, and it begins by denying innatism with an argument familiar from Aristotle: if the principles were innate to our souls, we would face the more vexing problem of how we can ever have been unaware of them.<sup>18</sup> The principles cannot be learned through demonstration either, because this would lead to infinite regress. Avicenna therefore endorses Aristotle’s combination of empiricism and foundationalism, and states that “there is a faculty in us, which naturally knows things without learning but with the assistance of aids assisting it in a way that

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<sup>15</sup> Jan-Erik Jones, “Locke on Real Essence,” section 1; see also Michael R. Ayers, “Locke Versus Aristotle on Natural Kinds.”

<sup>16</sup> Locke, *Essay*, IV.vi.15, 590; cf. III.xi.22, 520; III.xi.24, 521; IV.iii.6, 542; IV.iii.14, 546; IV.iii.16, 547; IV.iii.22, 553; IV.iii.24, 554; IV.iii.25, 555–56; IV.iii.28, 558; IV.iii.29, 560; IV.iv.12, 568; IV.vi.5, 581; IV.vi.11, 585; IV.vi.12, 588; and IV.vi.14, 588–89.

<sup>17</sup> For Locke’s role in this development, see Richard Boyd, “Realism, Anti-Foundationalism and the Enthusiasm for Natural Kinds,” 127–135; and Peter R. Anstey, *John Locke and Natural Philosophy*.

<sup>18</sup> Avicenna, *Shifā’*: *Burhān*, Book IV, Chapter 10, 330 (references to this work are according to book and chapter number in A. E. Affifi’s edition); cf. *Ar. An. post.* II.19, 99b26–33.

is different from the way in which teaching assists. Those aids are *the faculties of external sense and internal sense*, which are found in most animals.”<sup>19</sup> Especially important in this regard, and again echoing Aristotle, are the faculties of estimation and memory that are capable of perceiving and storing regularly recurring features in perception, and thus enable the human soul to organize its perceptions in a way that provides the necessary conditions for concept acquisition:

Then the faculty in us that acquires the first known [things] investigates these internal estimations and discriminates between the similar and the different, extracting what is accidental from each form and abstracting what is essential, so that at first a conception of simple [things] comes to be in it, and then, by the assistance of a faculty called thinking, it composes some of those simple [things] with others and distinguishes some from others, and so compositions of those meanings appear to it. And when it happens that some of them are such that it naturally knows them without learning or a middle term, it knows and observes them, for instance that the whole is greater than the part. (Avicenna, *Shifāʾ: Burhān*, IV.10, 331)

The faculty that is responsible for abstracting simple concepts and composing them into propositions is later specified to be “the faculty of theoretical intellection that we are born with,” which is “the sound natural preparedness” for knowledge.<sup>20</sup> However, based on this passage, it is clear that our theoretical intellect does not simply receive its proper objects but has to work on perceptual information by classifying perceived objects according to regular similarities and dissimilarities between them. These similarities and dissimilarities are then conceived in terms of essential and accidental features of forms, and once these basic classifications are in place, the intellect can combine them into truth-valued propositions, like the first logical principles of understanding, which can then be relied on in the acquisition of further knowledge, or definitions that provide the starting points for demonstration.<sup>21</sup>

This schematic account is supplemented and corroborated by the psychological part of the *Shifāʾ*.<sup>22</sup> It might therefore seem that Gutas was right and that there is a significant affinity between Avicenna and Locke, for Avicenna seems to hold not only that our mind is initially a blank slate, but also that we acquire knowledge by combining elementary perceptual content to more complex ideas, and eventually into truth-valued propositions. However, once we consider the theory of perception and the metaphysics underpinning Avicenna’s account, the affinity begins to crumble. The relevant ideas are hinted at towards the end of our chapter from the *Burhān*, when Avicenna introduces Aristotle’s analogy between the reorganization of a military unit after a withdrawal and the organization of sense perceptions into concepts,<sup>23</sup> and explains the analogy as follows:

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<sup>19</sup> Avicenna, *Shifāʾ: Burhān*, IV.10, 330, my emphasis; cf. *Ar. An. post.* II.19, 99b33–100a11.

<sup>20</sup> Avicenna, *Shifāʾ: Burhān*, IV.10, 333; cf. Fārābī, *al-Siyāsa al-madanīya*, 71–72.

<sup>21</sup> For the role of definition in Avicenna’s theory of science, see Riccardo Strobino, “Per se, Inseparability, Containment and Implication”.

<sup>22</sup> Cf., for instance, *Shifāʾ: Naḥs*, V.3, 221–22.

<sup>23</sup> *Ar. An. post.* II.19, 100a11–14.

Similarly, knowledge and the intellectual universal form are impressed in the soul little by little from sensed individuals, for when they are combined, the soul acquires from them the universal form and then discards them. That is also because what senses the particular may in one respect sense the universal, for that which senses Socrates may also sense a man. The same goes for what it conveys, for it is conveyed to the soul as both Socrates and a man, albeit a vague [*munṭashir*] man mixed with accidents, not a pure man. If the intellect then strips and removes the accidents from him, it is left with an abstract man, with regard to which Socrates is not different from Plato. Had the sense not perceived man in some way, the estimation in us and animals would not discriminate between the individuals of one species and another species, when there is no intellection, nor would the sense perform that discrimination. It is instead the estimation that performs it, although estimation distinguishes one thing and the intellect something else. (Avicenna, *Shifāʾ: Burhān*, IV.10, 332)<sup>24</sup>

The reason why perceived objects can be classified in a manner that matches with the natural joints between the specific essences of extramental things is that the form, which becomes a universal in the mind, is already there in the particular objects of perception. Avicenna here characterizes the potential intelligibility of the sensed form by the term ‘vague,’ which seems to signal an intermediate stage in the process of abstraction.<sup>25</sup> Although sense perception is always concerned with particular objects, we may still be somehow aware of commonalities between the distinct instantiations of a species without necessarily thinking of them as instantiations of a species concept that we possess. Epistemically speaking, these commonalities are in between the individual form, fully determined by its individuating accidents, and the universal concept that is abstracted from (and therefore undetermined by) all accidents, and they are vague in the sense of being particular but not fully determined. But be that as it may, the connection between Socrates or the fully determined individual, the vague man, and the universal concept of man, is the form of humanity that undergoes a process of increasing degrees of abstraction. We abstract the universal form by divesting the particular perceived form from the accidents that are attached to it due to its material circumstances, and we can do this because the form remains the same in the process.

This idea of formal, essential, or quidditative identity is the lynchpin of Avicenna’s theory of knowledge, and it is discussed at length in his psychological treatises, for instance when he spells out

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<sup>24</sup> Cf. Avicenna, *Shifāʾ: Burhān*, III.5, 222.

<sup>25</sup> In Avicenna, *Shifāʾ: al-Samāʾ al-ṭabīʿī* Book I, Chapter 1, Sections 9–11, I.9–10 (references to this work are according to book, chapter, and section number in Jon McGinnis’s edition), Avicenna uses the related notion of ‘vague individual’ (*shakḥ munṭashir*) to designate a quasi-concept or a proto-concept—employed, for instance, by human infants—that denotes a certain kind of individual without specifying any individual of that kind. It is employed on the basis of certain perceptual features, but it remains indeterminate enough to be applicable across a range of sufficiently similar factual individuals. The use of ‘vague’ here is slightly different, but I believe that the combination of determination and indeterminacy is crucial in both cases. For the notion of vague individual in Avicenna, see Deborah L. Black, “Avicenna’s ‘Vague Individual’”; and cf. Andreas Lammer, *The Elements of Avicenna’s Physics*, 63n64.

his theory of different types of perception as increasing degrees of abstraction of forms.<sup>26</sup> Moreover, formal identity not only provides the foundation for the process of abstraction in the mind, for it also extends to concrete extramental objects:

Let us now discuss the sensing and perceiving faculties, and let us discuss them universally. So we say: It seems that all perception is nothing but somehow taking the form of what is perceived. If the perception is a perception of something material, then it is taking its form somehow abstracted from matter, except that the kinds of abstraction are different and its degrees vary. States and things, which do not belong to the material form due to its essence insofar as it is that form, come upon it as accidents due to matter. Sometimes the extraction from matter takes place together with all or some of those attachments, sometimes the extraction is perfect, and that is because the meaning is abstracted from matter and the appendices that belong to it with respect to matter. An example of [this] is that the human form and the human quiddity is without doubt a nature in which all individuals of the species equally participate. In terms of its definition, it is one thing, but it happens to it that it exists in this or that individual and is thereby multiplied. . . . Other accidents also come upon it, namely when it is in some matter, it acquires a certain measure of quantity, a quality, a place, and a position, and all these things are extraneous to its nature. . . . The sense takes the form from matter together with these appendices and with a relation prevailing between [the form] and matter. (Avicenna, *Shifāʾ: Nafs*, II.2, 58–59)

The external senses take in the form of the object abstracted from the material substrate in which it was first realized but not from the individuating accidents that are due to matter. Like the subsequent cognitive operations, this first abstraction hinges on the relation of formal identity between the extramental thing and the object of perception: the form in the soul is the same as the external form, albeit not numerically, but only insofar as they are two instantiations of the same form. By the same token, the form can be said to be taken from its matter without the enmattered form thereby ceasing to exist or losing anything of itself, for this taking amounts to the coming to be of a new, numerically different but formally identical instantiation of it. The process of abstraction is then carried out on this basis, ultimately culminating in the perfect abstraction of an intelligible form that includes nothing but the constitutive features of its essence. All the while, it is the *same* form that was first taken into the soul and is then subjected to further abstractions.<sup>27</sup>

Avicenna also characterizes the connection between the form in the extramental reality and the form in the mind in causal terms. In the case of perception, the form in perception is caused by the extramental object, whereas in the case of human activity, such as a carpenter crafting a bed from wood, the form in the mind causes the form in the extramental world.<sup>28</sup> From a semantic point of view, the

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<sup>26</sup> Cf. Avicenna, *Shifāʾ: Nafs*, II.2, 59–61; and III.8, 152–54.

<sup>27</sup> For mental existence, or existence in the soul, in Avicenna, see Deborah L. Black, “Mental Existence in Avicenna and Aquinas”; and eadem, “Intentionality in Medieval Arabic Philosophy.”

<sup>28</sup> Avicenna, *Shifāʾ: Madkhal*, Book I, Chapter 12, 69 (references to this work are according to book and chapter number in the edition by Ibrahim Madkour et al.); for a more detailed analysis, see Michael E. Marmura, “Avicenna’s Chapter on Universals.”

relation can be thought of in terms of signification (*dalāla*), and indeed one in which there are no variations between individuals, the same mental form signifying extramental instantiations that are numerically many but one in form.<sup>29</sup> The notion of formal identity is also central to Avicenna's theory of truth as correspondence (*muṭābaqa*) between what is in the soul and what is in the extramental reality, for the relevant correspondence holds, again, between two instantiations of one form.<sup>30</sup>

These examples show that the principle of formal identity is foundational to Avicenna's conception of the epistemic relation between the world and the soul. Moreover, the idea is founded on one of the cornerstones of Avicenna's metaphysics, namely his theory of the identity of quiddities. As is well known, Avicenna holds that any quiddity can be thought of in three ways: as existing in concrete, as existing in the mind, and as in itself, existing in neither of the aforementioned ways.<sup>31</sup> This third aspect, the quiddity considered in itself, is the ground of the identity between its distinct instantiations by being a constitutive part of each of them. Speaking of the quiddity of animal, Avicenna writes:

As regards the general [*al- 'āmm*] animal, the individual animal, the animal insofar as it is considered potentially general or specific [*khāṣṣ*], and the animal considered as existing in concrete or as understood in the soul, it is animal and something [else], not animal regarded on its own. It is known that when there is animal and something [else], animal is in the two as if it were a part of them. (Avicenna, *Shifā' : Ilāhīyāt*, V.1.17, 153)

In the same context Avicenna says that we can validly consider the quiddity in the third sense, that is, the quiddity as such, together with the further determinations of being in concrete or in the mind, because "its essence with the other is still its essence [*dhātahu ma'a ghayrihi dhātuhu*]." This is the basis for both Avicenna's robust essentialism and his realism concerning universals, which becomes evident when he concludes *Shifā' : Ilāhīyāt* V.1, our chapter, with a brief remark concerning the formal identity between what is in the mind and what is in concrete:

In the intellect, there is a form of animal abstracted in the manner of abstraction that we have reported, and in this respect it is called an intellectual form. In the intellect, there is also a form of animal insofar as it corresponds in

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<sup>29</sup> Avicenna, *Shifā' : 'Ibāra*, Book I, Chapter 1, 2, 5 (references to this work are according to book and chapter number in Mahmoud El-Khodeiri's edition); cf. Ar. *De int.* 1, 16a3–8. For these aspects specific to mental existence, see Michael E. Marmura, "Quiddity and Universality in Avicenna."

<sup>30</sup> Avicenna, *Shifā' : Ilāhīyāt*, Book I, Chapter 8, Section 1 and I.8.9–12, 38–39 and 42–43 (references to this work are according to book, chapter, and section number in Michael E. Marmura's edition). Avicenna speaks of statements (sg. *qawl*), beliefs (sg. *i'tiqād*), and external things (sg. *shay' fī l-khārij*) here, without mentioning forms. However, I believe it is uncontroversial that statements and beliefs, as well as external things, are constituted by formal elements. For a detailed study of Avicenna's theory of truth, see Daniel De Haan, "Avicenna's Healing and the Metaphysics of Truth."

<sup>31</sup> Avicenna argues for this idea at length in *Shifā' : Ilāhīyāt*, V.1–2, 148–62. It is also discussed in *Shifā' : Madkhal*, I.12, 65–66 and 69, where Avicenna characterizes the three considerations as the quiddity before multiplicity (in itself), in multiplicity (in concrete), and after multiplicity (in the mind). For a more detailed discussion, see Fedor Benevich, "Die 'göttliche Existenz.'"

the intellect, as such and under one definition, to many instantiations [*mā yuṭābiqū fī l-‘aqlī bi-ḥaddīn wāḥidīn bi-‘aynihi a ‘yānan kathīratan*], so that one form is related to many by the intellect, and in this respect it is universal. (Avicenna, *Shifā’*: *Ilāhīyāt*, V.1.28, 156)

Considered as a form inhering in an individual human intellect, the form of animal is an individual instantiation, albeit an abstract one. However, considered in relation to the many concrete instantiations of the same form to which it corresponds by virtue of its formal identity with them, the individual form performs the function of a universal concept for that individual intellect. This function is only possible because of the formal identity between the form in the intellect and the many concrete forms.

But why is formal identity so important for the question of Avicenna’s *empiricism*? In order to explicate this, we have to consider another central feature of Avicenna’s metaphysics and cosmology. Following Abū Naṣr al-Fārābī, Avicenna ascribes two tasks to the active intellect Aristotle had postulated in *De anima* III.5. One of these is the epistemological function crucial to the explanation of human intellection, but since that function is precisely the bone of contention between the abstractionist and the emanationist interpretations, let us set it aside for the time being.<sup>32</sup> Less controversial, I believe, is the cosmological function of the active intellect as the so-called “giver of forms” (*wāhib al-ṣuwar*) that is responsible for the ontological structure of the sublunary world by its constant impression of species forms to properly prepared matter.<sup>33</sup> From the point of view of explanation in natural philosophy, this is a relatively uninteresting observation. The active intellect’s emanation is an unchanging and everlasting fact, and it does not give out forms variably or at whim, as an intermittently acting voluntary agent might. As a consequence, specific natural processes cannot be explained merely by reference to emanation. Instead, once the precondition of constant emanation has been postulated, sublunary phenomena must be explained by means of the formal, teleological, and material causes inherent in the entities under consideration, and frequently with an additional view to extrinsic efficient causes. In the generation of a kitten, for instance, the receptive preparedness of matter in the mother’s womb, which is ultimately a joint effect of the rotation of the superlunary celestial spheres<sup>34</sup> and various

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<sup>32</sup> Actually, there are two epistemological functions for the active intellect, and only the question of whether it is required for the first acquisition of intelligible concepts is controversial. The other function, namely the active intellect’s enabling us to recall concepts we have learned, despite the demonstrable absence of a faculty of intellectual memory in the human soul, is not disputed by any interpretation. Avicenna explicates this function in *Shifā’*: *Naṣṣ*, V.6, 245–48; for discussion, see Alpina, “Intellectual Knowledge, Active Intellect and Intellectual Memory.”

<sup>33</sup> Avicenna, *Shifā’*: *Ilāhīyāt*, IX.5.3, 335. For this role of the active intellect, see Jules Janssens, “The Notions of *wāhib al-ṣuwar* (Giver of Forms) and *wāhib al-‘aql* (Giver of Intelligence)”; cf. Davidson, *Alfarabi, Avicenna, and Averroes, On Intellect*, 78–81; and Kara Richardson, “Avicenna and Aquinas on Form and Generation.” Note that Dag Nikolaus Hasse, *Avicenna’s De anima in the Latin West*, 188, voices a doubt about the identification of the giver of forms with the active intellect. Be that as it may, since Hasse agrees that the giver of forms is an intellectual principle, my point remains: the metaphysical source of concrete forms is an intellect.

<sup>34</sup> In *Shifā’*: *Ilāhīyāt*, IX.5.1–3, 334–35, Avicenna says that the rotation of the celestial spheres is the cause of the first elemental forms that prime matter receives. The variation in the mixture of these elemental forms is then the

sublunary causes, determines the form the active intellect will emanate in this particular case, and once the feline form has been realized, the kitten's natural strive towards its specific perfection explains its spontaneous development.<sup>35</sup> Having said that, Avicenna holds that the active intellect remains responsible for the emanation of each subsequent stage in the teleological development—as a cause of the existence of sublunary things, its efficacy is constant. To put this in another way, the material preparedness, broadly speaking, determines what kinds of concrete things there are at a given place at a given moment, even if the things constantly owe their essence and existence to the active intellect.

Thus, the active intellect as the giver of forms is the metaphysical ground for natural philosophy but not an explanatory factor applicable in the investigation of particular natural phenomena. Yet as such a ground, it does play a crucial epistemological role. If we connect the idea that the ontological structure of the sublunary world is contained in and impressed in matter by the active intellect with the idea of formal identity that Avicenna employs throughout his cognitive psychology, we have to conclude that the soul's cognitive content has its ultimate source in the active intellect. If the emanationists are right, this is true twice: the principle that is responsible for the structure of the sublunary world by imprinting forms in matter and thus producing individual entities that fall in natural classes due to their respective essences, is the very same principle that illuminates the content of our minds and thus enables us to perceive the essential and accidental connections between different contents. This dual role of the active intellect has been argued to provide the foundation of scientific objectivity for Avicenna.<sup>36</sup> It is important to note, however, that regardless of this point of disagreement between abstractionists and emanationists, Avicenna can maintain that the content of experience is intelligible because its origin is intellectual, albeit an intellect distinct from the individual mind.

This has serious consequences for Avicenna's alleged empiricism. It is true that the individual human soul has no innate ideas, and that all that it comes to know must have its origin in sense perception. It is also true that the connection between the extramental essences and the forms in the soul may be disturbed, and Avicenna recognizes cases in which imagined content is confused with perceptions proper, like hallucination or psychosis, giving rise to mental content with no parallel in reality. However, he does not see them as reasons to engage in a proper refutation of any kind of

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basis for the material preparedness to receive different species forms from the giver of forms. Cf., however, *Shifā' al-Kawn wa'l-fasād*, Chapter XIV, 190 (references to this work are according to chapter number in Maḥmūd Qāsim's edition), where Avicenna suggests that even the elemental forms are due to the active intellect. For discussion, see Richardson, "Avicenna and Aquinas on Form and Generation," 265–68.

<sup>35</sup> Janssens, "The Notions of *wāhib al-ṣuwar* (Giver of Forms) and *wāhib al-'aql* (Giver of Intelligence) in Ibn Sīnā," 554–55, maintains that the active intellect emanates not only substantial forms but also forms of accidents, which would further corroborate my point. However, even if accidental forms were not due to the active intellect, the substantial natures, which are the central explanatory factors in Avicennian natural philosophy, would still be due to an intellectual principle.

<sup>36</sup> For this argument, see Alpina, "Intellectual Knowledge, Active Intellect and Intellectual Memory"; and Taylor, "Avicenna and the Issue of the Intellectual Abstraction of Intelligibles."

principled skepticism.<sup>37</sup> Instead, he seems to think that the causal connection between our perceptual faculties and the external objects is sufficiently reliable to validate our claims to knowledge—our cognitive system functions properly in the vast majority of cases. My argument now is that this is because the process of knowledge acquisition is so strongly determined by the content that comes into the soul from the external world. For Avicenna, our complex ideas and concepts are not construed in the soul from more basic perceptual content along the lines of Locke’s genetic analysis. Rather, the forms we receive from the world are structurally complex, indeed complete, as they come—we just have to separate the essential wheat from the accidental chaff to get at secure knowledge. This structural completeness is inherited from the extramental material objects, to which the forms in the mind are formally identical. Since the extramental forms have their origin in a rational principle, that is, the active intellect, one may ask whether this does not introduce a strong rationalist element to Avicenna’s epistemology: again, the forms I perceive are intelligible because their ultimate source is an intellect. Avicenna therefore subscribes to what we could call an “outsourced” form of rationalism, that is, a strong type of epistemic realism, which does away with innate ideas but hinges on the claim that our knowledge is predetermined by the essential structure of the active intellect, transmitted to us by the media of matter and sense perception.

Unlike Locke, Avicenna is not motivated by the threat of skepticism, nor does he attempt to found science on a reductive epistemological analysis of the structure of our thinking. Although he does remain true to the Aristotelian principle that logic and epistemology are propaedeutic to philosophy proper, this is a far cry from the Lockean idea of epistemology as first philosophy. Avicenna’s logic is not metaphysically neutral but firmly committed to essentialism and epistemic realism.<sup>38</sup> By the same token, Avicenna is outspokenly optimistic about our capacities of knowing extramental reality as it really is.<sup>39</sup> Linchpin of both epistemic and ontological order in the sublunary world, the active intellect guarantees that there is nothing in the created world that we cannot know, at least in principle. With perhaps the exclusion of God, Avicenna identifies the limits of knowledge with the limits of being, in stark contrast to Locke’s epistemological resignation.

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<sup>37</sup> Avicenna, *Ta’līqāt*, Section 258, 175–76 (references to this work are according to section number in Seyyed Hossein Mousavian’s edition); for discussion, see Jari Kaukua, “The Problem of Intentionality in Avicenna.”

<sup>38</sup> Consider, for instance, his distinction between real definition (*ḥadd ḥaqīqī bi-ḥasabi al-dhāt*) and nominal definition (*bi-ḥasabi al-ism*) in Avicenna, *Shifā’*: *Burhān*, IV.4, 290: “When [the definition] is according to essence, the unity of its parts is considered in a different way. That is because a statement is one in only one of two ways: either because it conjoins the parts with connecting copulae, as we have told in the foregoing in cases like a poem (*qaṣīda*) or a book, which wouldn’t be there without them, or because its parts become one thing in the soul, which [then] signifies one thing in existence. It seems that the parts of the definition which is according to name—as long as it does not correspond to a single existing [thing]—are united by copulae, unless it is taken in relation (*bi’l-qiyās*) to one image in the soul. . . . When it comes to the definition which is according to essence, it unites the parts really (*bi’l-ḥaqīqa*), because it stands for an image, a meaning, or an existing [thing] that is really one through a natural unity.”

<sup>39</sup> Cf. Hasse, “Avicenna’s Epistemological Optimism.”

### 3. *Complication 1: Constructivist Features in Avicenna's Theory of Perception*

Although Avicenna's theory of perception, as we have seen, is a straightforward account of the transmission and abstraction of forms from the external world to the soul, there are passages in his psychological treatises that seem to complicate matters. In chapter III.8 of the psychological part of the *Shifā'*, for instance, Avicenna presents a seemingly constructivist account of our perception of complex sensible information, which potentially compromises the realism of his standard theory. The main concern of the chapter is to explain the phenomenon of double vision, but towards the end Avicenna engages in a discussion of how we perceive the so-called common sensibles—things like shape, place, number, motion and rest, position, or spatial interrelation between objects. Interestingly, he ends up with an analysis that traces these sensible features back to cognitive operations the soul performs on the sense data proper to each of the five external senses:

Since these common sensibles can be perceived by means of these [five] senses, there is no need for another sense. Rather, since it is not possible to perceive them immediately, singling out a sense for them is impossible. Vision perceives size, shape, number, position, and motion and rest by means of color, and *it seems that the perception of motion and rest is mingled with a faculty other than sensation*. Touch perceives all this by means of hardness or softness in most cases, but it may [also] be through hot and cold. Taste perceives size by tasting a very widespread flavor [*ta'man kathīran muntashiran*], and it perceives number by finding many tastes in bodies. As regards motion, rest, and shape, it almost perceives them as well, albeit weakly and relying on touch for that. As regards [the sense of] smell, size, shape, and motion and rest are barely perceived through it as perceptions represented in that which [senses] smell, but number is perceived through it by being represented in that which [senses] smell, yet *the soul perceives that through a kind of syllogism or estimation* [*bi-darbin min al-qiyāsi aw al-wahm*] by knowing that that has ceased, the fragrance of which is abruptly cut off, and that that persists, the fragrance of which remains. When it comes to hearing, it does not perceive size, but hearing does fleetingly point the soul towards it, namely insofar as it may relate big sounds to big bodies, although they often come from small things, or conversely. However, it may perceive number and it does perceive motion and rest through the persistence or fading that accede upon enduring sounds, for their development through that difference is delimited like that distance, but this perception is one of those that *the soul perceives due to a regularity it recognizes* [*li'l-ādati allatī 'arafathā*]. A sound coming from what is at rest can be heard as [*'alā hay'a*] a sound, which is heard from what is in motion, and [a sound coming] from what is in motion as that which is heard from what is at rest. Hence, *this evidence* [*al-dalāla*] *is not reliable* nor does it entail anything by necessity *but rather holds in most cases*. (Avicenna, *Shifā': Nafs*, III.8, 160–61; my emphases)

Avicenna makes a number of claims relevant to our topic in this rich passage. First, he says that the perception of common sensibles is due to the co-operation of the relevant sense with another potency or faculty. Second, in some cases, here exemplified by the faculty of smell, the perception of a

substance-like object, which has a magnitude, a shape, and other qualities not immediately available to the sense in question, and which is conceived as the bearer of the immediately sensed feature, involves a process that is like syllogistic reasoning or estimation, which gives us a clue about the identity of that other faculty. Third, this implicit inference in perception may be due to what the soul has been accustomed to through past experience and now recognizes in the present case. Fourth, and finally, although such inferential perception may statistically more often hit than miss the true state of affairs, there is still a great deal of uncertainty and room for error in the process. Avicenna explicitly says that the evidence thereby attained is “not reliable” (*lā takūna hādhihi al-dalālatu markūnan ilayhā*).<sup>40</sup>

These statements are relevant to us, because it seems reasonable to assume that complex perceptible forms, like the substantial form of a horse, are structured from primitive sense data along the lines described in the passage—perhaps they even require further inferential steps founded on the perception of common sensibles analyzed here. If that is the case, then instead of being a merely passive recipient of complex formal content from the external world, as the standard theory had it, the perceiving soul is an active player in the construction of substance-like objects of perception. And if this construction process is fallible, perhaps Avicenna does have a more Lockean story to tell about the emergence of complex concepts from sense perception. Why, and how exactly, are colors, shapes, fragrances, and sounds composed into wholesome perceived forms that manage to re-instantiate the very forms that structure the external intentional objects of the respective perceptions?

In Avicenna’s psychological system, the estimative faculty is perfectly suited to assume the responsibility for such a proto-conceptual structure in human and non-human perception, and the vague reference to estimation in the present passage could perhaps be substantiated by his account of the functions of this protean faculty. I have elsewhere suggested that in addition to its famous function of perceiving non-sensible content that is explanatory of animal agency, like in the paradigmatic case of the sheep’s perception of the wolf’s hostility and its consequent flight therefrom, estimation is also the basis for all perception of incidental content.<sup>41</sup> In this interpretation, any perception of immediately sensible content *as* something, for instance in Avicenna’s example of seeing something yellow as honey, requires estimation.<sup>42</sup> If that is the case, then it might seem that attributing the estimation with an active role in perception opens a way for a properly empiricist analysis of the emergence of complex mental content from simple sense data, or the construction of substance-like objects from immediately sensed properties. This, in turn, would seriously undermine the foregoing claim of Avicenna’s

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<sup>40</sup> This last point may echo Ar. *De an.* III.3, 428b19–25, although Aristotle does not go quite as far as saying that the perception of the common and the incidental objects of perception is unreliable. I am grateful to one of the anonymous referees for insisting on this connection.

<sup>41</sup> Jari Kaukua, “Avicenna on the Soul’s Activity in Perception.”

<sup>42</sup> Avicenna, *Shifā’*: *Nafs*, IV.1, 166; IV.3, 182–85; cf. Deborah L. Black, “Estimation (*wahm*) in Avicenna,” 226–27.

outsourced rationalism, which hinges on the straightforward transmission of formal content from the active intellect to the sublunary world, and onwards to the soul.

However, if such a constructivist theory was a possibility for Avicenna, he never cashed it out, and the epistemological consequences of these perceptual inferences remain all but implicit throughout his works. Its structuring role notwithstanding, estimation remains a receptive—that is, passive—faculty which, for the most part, functions in a reliable manner, much like the external senses do when they receive information from the external world. There are individual variations, of course, like the mistreated dog that is afraid of rods,<sup>43</sup> but these can be explained by means of causes extrinsic to estimation itself, such as the pain the dog has felt in the past.<sup>44</sup> In the vast majority of cases, estimation simply receives its content from the sensed form, and the object is perceived as the sort of thing it in fact is.

Moreover, Avicenna hardly thought he was introducing anything revolutionary with the idea of an implicit inference in perception. As in a number of other questions, such as his situating the cognitive faculties in the brain instead of the heart, he was incorporating insights from the medical tradition into the Peripatetic mold of his psychology. In *De placitis Hippocratis et Platonis*, Galen had suggested that common and incidental perceptual content is perceived by means of a *sylogismos*,<sup>45</sup> and although the Arabic translation of the work does not survive, it was most likely available to Avicenna.<sup>46</sup> It is true that Galen's theory of vision is quite different from that of Avicenna, particularly with regard to their respective accounts of the causal interaction between the world and the perceiving subject,<sup>47</sup> but this aspect could easily have been adopted in isolation and then accommodated to the Peripatetic theory. Avicenna may also have been familiar with Ḥunayn ibn Ishāq's (d. 873 CE) brief mention, probably also culled from Galen, that certain common sensibles are perceived by means of a syllogism.<sup>48</sup> Finally, Avicenna's junior contemporary, the great optician Ibn al-Haytham (d. ca 1040 CE) developed the idea into a substantial theory of the acquisition of complex visual content from the basic data of color and light by means of various operations by the perceiving mind.<sup>49</sup> I hesitate to assert any direct influence in either direction in this latter case, but at the very least Ibn al-Haytham's theory of vision provides

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<sup>43</sup> Avicenna, *Shifā': Nafs*, IV.3, 182–85.

<sup>44</sup> Estimation is also the source of a number of theoretical errors, such as the belief that only corporeal things exist, but these are cases, in which it transcends its natural function and interferes with matters belonging to the intellect. On these estimative judgments, see Black, "Estimation (*wahm*) in Avicenna," 229–32.

<sup>45</sup> Gal. *plac. Hipp. et Plat.*, Book VII, Chapter 7, II.466 (references to this work are according to book and chapter number in Phillip de Lacy's edition); for discussion, see Katerina Ierodiakonou, "Galen's Criticism of the Aristotelian Theory of Colour Vision."

<sup>46</sup> Cf. Gotthard Strohmaier, "The Arabic Translation."

<sup>47</sup> On Galen's theory of vision, see Katerina Ierodiakonou, "On Galen's Theory of Vision."

<sup>48</sup> Ḥunayn ibn Ishāq, *Kitāb al-'ashra maqālāt fī al-'ayn*, Chapter III, 108–9 (references to this work are according to chapter number in Max Meyerhof's edition).

<sup>49</sup> Ibn Haytham, *Manāẓir*, especially relevant are Book II, Chapters 3–4 (references to this work are according to book and chapter number in A. I. Sabra's edition).

circumstantial evidence for the availability of a constructionist approach to the scientific explanation of vision in Avicenna's time.

However, the mere possibility of a constructionist analysis of perception is not sufficient evidence for the claim that Avicenna endorsed it, let alone its potential consequences. Had he felt a need to re-evaluate the realistic foundation of his Aristotelian epistemology in light of the soul's inferential role in the acquisition of perceptual objects, he would have done so. I would like to suggest he refrained from that, because he simply did not perceive the idea as a threat to his robust realism. At best, it was a complication that could enrich, but definitely need not undermine, his standard theory of knowledge.

#### 4. *Complication 2: Avicennian Scepticism?*

In the enigmatic text known as the *Ta'liqāt*, characterized as a series of minutes of oral communication between Avicenna and one or several of his students,<sup>50</sup> Avicenna addresses repeatedly and at length the question of God's knowledge of Himself and His creation.<sup>51</sup> A constantly recurring motif is the comparison of divine with human knowledge—in terms unfavorable to us, unsurprisingly. One of the respects in which we are found lacking is our incapacity to penetrate into the true essences of things.

Acquaintance [*al-wuqūf*] with the realities of things is not within the capacity of men. We are only familiar [*nu'arifū*] with the properties, concomitants, and accidents of things, [but] we are not familiar with the constitutive differentiae, which indicate [the thing's] reality, of any of them. Rather, we are familiar with their being things which have properties and accidents. We are not familiar with the reality of the First, the intellect, the soul, the [celestial] sphere, fire, air, water, or earth, and we are not familiar with the realities of accidents either.

For an example of that, we are not familiar with the reality of substance. Instead, we are familiar with something that has this property, namely that it exists not in a subject, [but] this is not its reality. We are not familiar with the reality of body. Instead, we are familiar with something that has these properties, namely length, breadth, and depth. We are not familiar with the reality of animal. Instead, we are familiar with something that has the properties of perception and action, yet perceiving or acting is not the reality of animal but a property or a concomitant, and with its real differentia we are not familiar. Because of that, controversy has arisen concerning the quiddities of things, for everyone has perceived a concomitant that is different from what another has perceived, and has judged according to that concomitant. (Avicenna, *Ta'liqāt*, 62, 71)

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<sup>50</sup> Cf. Jules Janssens, "Les *Ta'liqāt* d'Ibn Sīnā," 116–18; and Dimitri Gutas, *Avicenna and the Aristotelian Tradition*, 162–64.

<sup>51</sup> Indeed, according to Janssens, "Les *Ta'liqāt* d'Ibn Sīnā," 113, God's knowledge of particulars, with its ramifications, is the only question dealt with in the entire work.

Avicenna's immediate objective seems to be a rhetorical argument: since we fail to know even the simplest mundane things, such as the elements, or the things most familiar to us, like the macroscopic entities at hand, how could we aspire to know their transcendent Creator? However, he makes his case in a way that betrays fundamental epistemological concerns, which go beyond mere rhetoric. First, the passage makes the epistemological point that we proceed to knowledge of essences, if at all, by way of inference from their concomitants that are perceivable and therefore familiar to us. This is a common Aristotelian point,<sup>52</sup> but here it is coupled with what seems like principled fallibilism: Avicenna suggests that the best we can have are informed hypotheses concerning the essences of things, and that these hypotheses will always remain debatable, because they are determined by the set of perceivable concomitants we have chosen as our point of departure. To use a well-known example, an investigator who begins from the observations of featherlessness and bipedality will arrive at a different concept of humanity than one who begins from speech and mortality, and there are scant means of decisively judging one superior to the other based on empirical observation alone. Does this not mean that we can never be certain of our knowledge of the real essences of things? And if that is the case, is Avicenna a *Lockean* empiricist, and not an outsourcing rationalist, after all?

Given the fact that such a skeptical conclusion is severely at odds with the epistemological optimism of Avicenna's standard theory, and given the uncertain textual history of the *Ta'liqāt*, it might seem wise to suspect that our text is not Avicenna's own view but that of his student or redactor.<sup>53</sup> However, the same point recurs so many times elsewhere in the text that denying its origination in Avicenna's own words seems desperate.<sup>54</sup> Let us therefore attempt first to reconcile the passage with the realistic principles Avicenna standardly endorses, and then, should that prove unfeasible, consider what the passage means to our question.

The close reader's attention is quickly drawn to the fact that the text consistently applies a family of terms derived from the Arabic root *'-r-f*, which signifies a concept of cognition that is more readily available but epistemically less secure than the strong notion of scientific knowledge (*'ilm*), and which I have translated as 'being familiar with something,' in order to highlight precisely this difference. Avicenna makes the distinction quite systematically. For instance, in an account of the proper order of scientific investigation in *Shifā': Burhān*, Avicenna explains that one must first become acquainted with the existence of an object of investigation by answering the question of whether (*hal*) there is anything to investigate in the first place. Only on such a foundation can one proceed to study what (*mā*) that thing is, and if one is successful, eventually arrive at its real definition. He then sums up this order of

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<sup>52</sup> Cf. *Ar. An. pr.* II.23, 68b35–37; *An. post.* I.2, 71b32; *Top.* VI.4, 141b2–142a12; *Phys.* I.1, 184a16–20; *Met.* VII.3, 1029b3–12.

<sup>53</sup> Janssens, "Les *Ta'liqāt* d'Ibn Sīnā," 116–18, is quite positive that the text faithfully represents Avicenna's own views, albeit possibly in a second-hand transcription. As far as I am aware, the text was also considered genuine by most, if not all post-Avicennian scholars.

<sup>54</sup> Cf. Avicenna, *Ta'liqāt*, 314, 202–3; 345, 219; 718–19, 405–6; and 730, 410.

procedure with an explicit distinction between *ma'rifa*, or familiarity, and *'ilm*, or knowledge in the proper sense of the word:

Any person, when addressed with a name, will have some grasp and become acquainted [*waqafa*] with something that the name signifies, if only he knows the language. But when it comes to the definition, only one well-versed in the art of logic will become acquainted with it. The first case is familiarity, the second knowledge, just as sensation is familiarity and intellection knowledge [*kamā anna al-ḥissa ma'rifatun wa'l-'aqla 'ilm*]. (Avicenna, *Shifā'*: *Burhān*, I.5, 69)<sup>55</sup>

If this distinction is applied to the sceptical challenge, all Avicenna says in the problematic passage is that we have no immediate access to the realities or essences of things, and that we can only perceive them by means of their various concomitant features. However, this need not compromise his epistemological optimism—on the contrary, the statement abides by the order of procedure proper to scientific investigation as described in *Shifā'*: *Burhān*. Avicenna only brings up this point in the *Ta'liqāt* to highlight the difference between our knowledge and that of God: unlike us, God knows everything immediately, indeed by knowing Himself, without having to resort to a process of thinking or hunting down real definitions. Importantly, this is a distinction he can make without lapsing into the stronger form of skepticism.

A similar strategy was adopted by Avicenna's arguably most defensive early commentator Naṣīr al-Dīn al-Ṭūsī (d. 1274 CE) in a brief correspondence with the aspiring Sufi philosopher Ṣadr al-Dīn al-Qūnawī (d. 1274 CE), who appealed to our passage in an argument for the insufficiency of the philosophers' epistemological foundation. Ṭūsī seized on the fact that Avicenna does not deny our access to intelligible concepts of essences but only our immediate acquaintance with them. In a familiar realist move, Ṭūsī argues that a complete lack of a secure epistemic foundation would undermine even the skeptic's doubt of the principles of knowledge: "How does one who is not acquainted with the reality of body judge intuitively [*badīthan*] that two bodies cannot come together in one place, or that one body cannot be in two places at one time?"<sup>56</sup>

However, one of the passages in the *Ta'liqāt* formulates the skeptical idea in a way that makes the reconciliatory interpretation problematic:

One is not familiar with the differentia that is constitutive of a species, nor does one perceive it by either knowing or being familiar with it [*al-faṣlu al-muqawwimu li'l-naw'i lā yu'arafu wa-lā yudraku 'ilmahu wa-ma'rifatahu*]. The things that are brought forth as differentiae [merely] point towards [*tadullu 'alā*] the differentiae, being their concomitants. A case in point is 'rational', for it is something that points towards the differentia constitutive to

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<sup>55</sup> Cf. Avicenna, *Ta'liqāt*, 811, 443: "Sensation is a way to familiarity with something, not knowledge of it. The thing is only known by means of thinking and the intellectual faculty, and by means of it unknown things are hunted down with the help of the first [principles]."

<sup>56</sup> Naṣīr al-Dīn al-Ṭūsī, *al-Ajwiba*, 101.

man, which is a ground [*ma'nā*] that necessitates his being rational. Defining by means of the likes of these things [yields] descriptions, not real definitions. (Avicenna, *Ta'liqāt*, 719, 405–6)

Here Avicenna explicitly denies not only our immediate familiarity with the constitutive features of species, but knowledge of them, full stop. This entails denying our capacity to acquire definitions, and thereby undermines the entire Peripatetic theory of science that Avicenna has so carefully laid out in his standard theory. Strictly speaking, the passage does not deny the possibility of eventually arriving at the real constitutive features by means of the concomitants, but the mention of rationality, which was almost unanimously considered constitutive of humanity, seems puzzling. What could possibly be the constitutive element of which rationality is a mere concomitant?

If this statement is really from Avicenna himself, and not a fortuitous accident of the redaction process of the text, it might be evidence of a more radical empiricist thread in his thinking. That notwithstanding, it remains the unique piece of evidence for such a strand.<sup>57</sup> In light of the considerably weightier evidence for the standard theory I have characterized above, it is at best a sign that Avicenna entertained doubts about the optimism of his standard view. In other words, if the skeptical remarks herald empiricism in a genuinely Lockean sense, this is at the cost of undermining the very foundations of Avicennian philosophy.

##### 5. Conclusion: Empiricism in Islamic Philosophy?

If Avicenna's heritage was an unresolved tension between epistemological optimism and empiricist resignation, it will be enlightening to conclude with a brief comparative look at a rival epistemological theory that explicitly endorses crucial elements characteristic of a genuinely Lockean kind of empiricism. A challenge similar to, but more ambitious than that of Qūnawī was put forth by the neo-Ash'arite theologian Fakhr al-Dīn al-Rāzī (d. 1210 CE). In the logical part of a comparatively early theological *summa*, the *Nihāyat al-'uqūl fī dirāyat al-uṣūl*, Rāzī argues that real definitions are unachievable because the entire notion is incoherent, and then makes a critical claim about the explanatory relation between phenomenal and theoretical concepts.

Rāzī begins with an uncontroversial characterization of complete real definition: it is an analytic account of all the constitutive elements of the quiddity that is being defined.<sup>58</sup> He then asks whether the defined quiddity is known by (a) knowing each of its constituents singly or (b) by knowing them together. In case of (a), we will never come to know the quiddity, because the definition through which

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<sup>57</sup> And indeed, there are passages in the *Ta'liqāt* that testify to Avicenna's standard realism; cf., for instance, 617, 345; and 992, 565.

<sup>58</sup> Fakhr al-Dīn al-Rāzī, *Nihāyat al-'uqūl*, Book I, Chapter 1, Section 3, I.107–8. References to this text are according to book, chapter, and section number in Sa'īd Fūda's edition.

it is known must include all the constitutive elements. If knowing any one constituent alone were sufficient, then that would be the only constituent, as a result of which the quiddity turns out to be simple and therefore indefinable. But alternative (b) also leads to absurdities, because the set of constituents is either (b1) identical to the quiddity, (b2) a part of the quiddity, or (b3) something extraneous to the quiddity. In case of (b1), we would be defining the quiddity by means of itself, which everyone agrees is an infertile exercise. If we opt for (b2) instead, it turns out that the set we supposed to be complete is not a complete set after all but merely a part of the entire quiddity, and therefore not sufficient to define it. Alternative (b3) is dismissed as obviously impossible, because real definitions are distinguished from mere descriptions precisely because they, unlike the latter, can never consist of elements extraneous to the *definiendum*.<sup>59</sup> Rāzī then concludes:

Know that there is no way out of these problems except by saying that making known by way of definition or description [*al-ta'rifāta al-ḥaddīyata wa'l-rasmīya*]<sup>60</sup> amounts to an analytic account [*tafṣīl*] of what a name signifies as a whole [*alā sabīli l-ijmāl*]. However, something else follows from it, namely that there remains no difference between definition and description. (Rāzī, *Nihāyat al-'uqūl*, I.1.3, I.113)

In other words, having shown that real definition, the foundation of Avicenna's theory of science, is incoherent, Rāzī suggests that if we loosen the requirements for definitions and accept that their primary function is to clarify the ways in which we use the terms of our language, we will stand on an epistemically more modest but also much more secure ground. This, however, comes at the cost of compromising the metaphysical conviction that our terms and definitions correspond to constitutive features and essences in the extramental reality.

As inherently interesting as Rāzī's critique of real definition is, I have to set aside the question of its validity here. Instead, I would like to conclude by pointing out that it is designed to serve an epistemology more radically empiricist than that of Avicenna. A chapter later in the *Nihāya*, Rāzī gives an account of the most secure grounds our knowledge can have. He calls these *ma'ārif*, but earlier on, he has stated that this term is synonymous with the philosophers' *taṣawwurāt*, that is, conceptions which we can entertain in the mind and to which we can either give or withhold our assent (*taṣdīq*), thereby acquiring knowledge.<sup>61</sup> He divides such foundational concepts into the phenomenal concepts that are acquired through sense experience and those that are not such, and it is the first class that is of particular interest to us.

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<sup>59</sup> Rāzī, *Nihāyat al-'uqūl*, I.1.3, I.110–11.

<sup>60</sup> In *Nihāyat al-'uqūl*, I.1.3, I.111–12, Rāzī has presented independent reasons for why descriptions are also problematic.

<sup>61</sup> Rāzī, *Nihāyat al-'uqūl*, I.1.1, I.103–4. Strictly speaking, such conceptions of propositions are a special kind of conception. The simplest kind is a conception of an isolated essence, to which assent cannot be either given or withheld, unless an existence claim is added or something is predicated of it.

When it comes to those that are sensed, they cannot be defined [*lā yumkinu ta 'rīfuhā*], because if they could be defined, that would no doubt be through something better known than them, yet we do not find in the intellect any things better known than that which is sensed, such that we could define the latter by means of the former. One who tries to define these sensed things is therefore evidently incorrect. Let us mention two examples of them.

The first example is that the philosophers have said, “Heat is that in the nature of which it is to bring together similar things and separate different things, whereas coldness is that in the nature of which it is to do the opposite of that.”

This is false, because if that is intended to show that this sensed quality—which we call heat—necessitates these effects, that is a claim [*da 'wā*] that requires demonstration, and a claim is not a definition.

If its objective is to show the definition of that which is called by the term ‘heat,’ that is, a linguistic definition, then [it is false] because those things that they have mentioned do not occur to the minds of the language users when they utter the word ‘heat.’

If the objective is to define this specific quality that we perceive from fire through our touch, then it is known that that quality is more familiar to everyone than these things they mention, because all laymen distinguish between heat, insofar as it is heat, and other things, and a distinction between a thing and another thing is not possible, unless one is familiar with the thing. Hence, the laymen are familiar with the reality of heat even if it did not occur to them that it brings together similar things and separates different things. (Rāzī, *Nihāyat al-'uqūl*, I.1.5, I.117–18)

Sensed things, such as heat (or sounds and colors, to mention Rāzī’s second example), cannot be defined even in the compromised sense of nominal definition, because there is nothing better known than them, which could provide us with the *definiens*. Everyone knows what heat feels like, and this is the basis on which we constantly rely, and duly so, in differentiating between hot and cold things. Even children and cognitively underprivileged persons are capable of this much,<sup>62</sup> and so our conception of heat cannot be acquired from a definition.

This does not rule out the possibility of explaining the physical constitution, generation, or causal powers of heat by way of natural philosophy. However, the relation between the empirical phenomena and the concepts designed to explain them is more complex than philosophers like Avicenna have claimed.

When it comes to specialists, they do not know that heat is such [that it brings together similar things and separates dissimilar things], except through an argument, if such is available. How could this not be the case when one will only have acquired knowledge<sup>63</sup> that this bringing together and separation are traced back to coldness and heat, if one first knows that they cannot be traced back to a choosing agent who brings these effects to existence subsequent to an encounter with what is hot or cold? That can only be established by refuting the choosing agent and the temporal creation of the world, whereas anyone endowed with understanding knows necessarily that his

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<sup>62</sup> Rāzī, *Nihāyat al-'uqūl*, I.1.5, I.119.

<sup>63</sup> I adopt the alternative reading *al-'ilm* instead of Fudā’s *al-mu'allim*.

knowledge of heat and coldness does not depend on a decisive argument for the eternity of the world or a denial of the choosing agent. (Rāzī, *Nihāyat al-‘uqūl*, I.1.5, I.118)

Rāzī’s point is that the results of the natural philosopher’s investigation must not be confused with definitions, for they are positive explanatory claims concerning the phenomena. As claimants to the status of knowledge in the normative sense of the word, they are frequently based on long chains of argumentation, appeal to corroborative evidence, and eventually rely on contested metaphysical doctrines concerning causality, the eternity or immutability of the world and its regularities, and so forth. As a result, such claims are inherently theory-laden and thus debatable, even if the phenomenal ground from which they depart were completely uncontroversial.

It has recently been argued that texts like the foregoing are evidence for Rāzī’s replacement of Avicenna’s theory of science with an alternative, phenomenalist theory.<sup>64</sup> While I cannot properly assess the validity of such a more ambitious interpretation here, I do believe that the evidence warrants the more modest observation that the sort of methodological suspicion familiar from Locke plays an important role in Rāzī’s critique of the Peripatetic theory of science. Of course, this does not mean that Rāzī shared Locke’s enthusiasm for the empirical sciences, or that he aimed at a neutral theory of science that enables us to entertain the possible validity of alternative explanations of natural phenomena. We should duly heed Rāzī’s nod to the theological voluntarism and occasionalism of his Ash‘arite predecessors. For him it suffices to undermine the philosophers’ epistemological optimism and the related claim that Peripatetic natural philosophy can be distilled from our perceptions by a straightforward process of abstraction. If he can show that perceptual phenomena are neutral in this regard, and that the philosophers’ theory is by no means a foregone conclusion, he has made his point.

Having said that, there is a positive lesson to be learned from this brief excursion to Rāzī. Regardless of the question of his ulterior motives, Rāzī is much more sensitive to the threat of—or rather, the opportunity for—skepticism than Avicenna was in his standard theory, and his theory of knowledge signals the sort of concerns characteristic of Locke. If we could show that Rāzī was spurred by the skeptical ideas incubated in the *Ta’līqāt*, we could perhaps conclude that Gutas was partly right: there is a nascent empiricism of genuinely Lockean kind in Avicenna. Even so, however, it would be one that could only be brought forth by way of a thoroughgoing critique of his Aristotelian commitments that, as I have tried to argue in the foregoing, ultimately lean towards rationalism rather than empiricism.

Furthermore, I believe that our brief consideration of Rāzī shows that epistemological empiricism need not be married to an endorsement of the empirical sciences, nor does the converse necessarily

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<sup>64</sup> Bilal Ibrahim, “Freeing Philosophy from Metaphysics”; and *idem*, “Faḥr ad-Dīn al-Rāzī, Ibn al-Hayṭam and Aristotelian Science.”

hold.<sup>65</sup> On the contrary, the relation between the respective histories of science and philosophy is much more complicated, and although it may be attractive to think of the Lockean turn as a concerted positive move in the respective developments of philosophy, theory of science, and the natural sciences themselves, our material suggests that they should be viewed as distinct developments, with distinct logics of progression.<sup>66</sup> It is true that science and philosophy were largely one in ancient and medieval Aristotelianism, and perhaps again for a while in the early modern period, but this is hardly the case in our own time, and we don't need to stretch our perspective too wide to realize that this particular marriage was hardly ever exhaustive of the philosophical scene. Ideas of immediate relevance to the history of philosophy, but possibly quite negligible for the history of science, were frequently put forth by critics of that synthesis, whereas a philosophically naive realism may have continued to provide a more fertile ground for the sciences.<sup>67</sup>

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<sup>65</sup> I therefore strongly oppose Gutas's recent argument ("Avicenna and After"), according to which post-Avicennian Islamic thought does not merit the congratulatory title of philosophy, because it gives up the Aristotelian project of a philosophically grounded system of empirical sciences.

<sup>66</sup> Consider also Jolley, *Locke*, according to whom the central motivations behind Locke's epistemology were religious and moral.

<sup>67</sup> I am grateful to the two anonymous referees of the *Journal of the History of Philosophy* for their insightful suggestions, as well as to all those who commented on earlier versions of this paper, especially Davlat Dadikhuda, Yusuf Daşdemir, Pavel Gregoric, Katerina Ierodiakonou, Hadel Jarada, Vili Lähteenmäki, Jon McGinnis, Kutlu Okan, and Nathan Spannaus. The research was conducted by the generous funding of the Academy of Finland and the European Research Council (grant agreement number 682779).

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