

# Avicenna On Perception, Cognition, and Mental Disorders: the Case of Hallucination

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## 1 Introduction

The relation between sensing/cognition and mental disorders (*āfāt al-dhihn*)<sup>1</sup> receives special attention in Avicenna's writings on psychology and medicine. Avicenna identifies two ways of diagnosing mental disorders: one way is in relation to the function of the senses, while the other is in relation to the internal faculties. A psychological phenomenon commonly exhibited in such disorders is the experience of hallucinatory content, that is, registering perceptible content that does not exist to what assumed to be the correspond to an existing object in external reality. In this chapter, I set out to investigate the cognitive process underlying the experience of hallucinatory content, and to show the significant roles that compositive imagination plays in creating and imposing this content upon sensory experience.

In the first part of this chapter, I present various cases of mental disorder that involve hallucinatory content in relation to the senses and the internal faculties. Special attention is paid to the case of vertigo, which Avicenna uses explicitly to demonstrate the relation between this disorder and one's perception. In addition, I show how the physical arrangement of the internal senses in the brain determines their involvement and function with respect to hallucination. This prepares us for a discussion of the cognitive process of hallucination in the second part, where I address three key questions: (1) Which faculty plays the most critical role in generating and imposing the hallucinatory content and embedding it in the corresponding setting of external reality? (2) Why does specific hallucinatory content arises in specific cases? And finally, (3) is there a rudimentary distinction between the hallucinatory experience and veridical experience? The conclusion of the chapter will show that Avicenna is one of the first philosophers to offer a comprehensive and significant cognitive account of the hallucinatory nature of mental disorders that contributes to our understanding of human psychology.

## 2 Hallucinatory content manifest in sensory experience

Avicenna identifies two types of mental disorder that affect the human brain: those that affect the bodily parts responsible for the relation between the sense organs and the brain (such as the visual nerves) and those that directly affect the parts of the brain

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<sup>1</sup> Avicenna explicitly uses this term in *al-Qānūn fī al-ṭibb*. See Avicenna, *al-Qānūn fī al-ṭibb*, Book III, ed. A. al-Dinnawi, (Beirut: Dār al-Kutub al-'Ilmiyya, 1999), 96. Generally speaking, Avicenna uses the term 'mental disorder' to refer to a state in which cognitive powers of the soul are in disorder.

that are assigned to cognitive faculties.<sup>2</sup> Following Hippocrates and Galen, he attributes the causes of these disorders to substantial changes of the temperament (*mizāj*), that is, an excess or lack of cold/hot and wet/dry, within different parts of the brain. By and large, these disorders affect the activities of the human brain by engendering a state of “weakness, alteration, or confusion, leading to ineffectiveness (*buṭlān*).”<sup>3</sup>

In the case of vision, Avicenna argues that:

[...] when vision is impacted by a disorder, it becomes either ineffective, weak, or its activities become confused, so that it deviates from its natural course; thus, it imagines something that has no existence in external reality, such as fanciful imaginings, bugs, flames, smoke, or the like. If these disorders are not specific to the eyes, then they indicate a disorder within the brain.<sup>4</sup>

Thus, if the sense (in this case, vision) is otherwise sound but hallucinatory content is experienced, this is a clear indication of the existence of mental disorder within the brain. When the specific seat in the brain responsible for vision is affected by this disorder, one begins to see images that have no appropriate correspondents in external reality.

Another form of the first type of disorder is auditory hallucination. The same variation of disorder applies here: a weakened sense of hearing will only perceive what is near and loud. In the case of “confusion,” one

[...] may hear that which has no existence in external reality, such as [in the condition of] tinnitus, which resembles a low continuous vibrating sound of water, or the beating of hammers, or the sound of the drums, or the rustling of the leaves of a tree, or the hissing of the winds, or something like that.<sup>5</sup>

Here again, there is perceptible content—a hearing of something—in the absence of a corresponding object or auditory stimulus in external reality. Mental disorders relating to hearing may take different forms such as “hearing something as though hearing it from far away.”<sup>6</sup> This case points to perceptible content fixed to a distorted spatial position. It is a problem pertaining to the faculty of representative imagination (as will be explained below), one of the primary functions of which is to fix sensory content in the right bearing and range.

The case of smell is no different than that of vision or hearing. A disorder in the forepart of the brain causes weakness, ineffectiveness, or confusion in the ability to smell. Avicenna claims that in this type of disorder one may “sense malodorous or non-malodorous scents that have no existence in external reality, and this most likely is an indication of having some humours trapped in the forepart of the brain.”<sup>7</sup> Disorders producing hallucinatory content apply to the senses of taste and touch as well. However, with respect to the sense of touch, unlike the previous senses, Avicenna affirms that the cause of most of its disorders have to do with the nerve endings, so the brain contributes little to it.<sup>8</sup>

The common feature in these cases is that hallucinatory content is generated within the brain and involves the sense organ, causing it to experience this content

<sup>2</sup> Avicenna, *al-Qānūn*, Book III, 11.

<sup>3</sup> Avicenna, *al-Qānūn*, Book III, 11.

<sup>4</sup> Avicenna, *al-Qānūn*, Book III, 11–12.

<sup>5</sup> Avicenna, *al-Qānūn*, Book III, 12.

<sup>6</sup> Avicenna, *al-Qānūn*, Book III, 12.

<sup>7</sup> Avicenna, *al-Qānūn*, Book III, 12.

<sup>8</sup> Avicenna, *al-Qānūn*, Book III, 12.

within its sensory field. The cause of having such perceptible content is different from the cause of ordinary cases of sense perception, or what modern scholars refer to as “veridical perception,” in which no illusion or hallucination is involved.<sup>10</sup> Veridical perception, in Avicenna’s view and in the Aristotelian tradition in general, results from having a sensible form of a proper object affecting the sense, causing it to have some corresponding sensory content; such content is then perceived and transmitted to different stages of cognition to become perceptible content. In contrast, in the case of hallucinatory content a reverse process occurs: there is already a perceptible content that refers to an object which does not however exist in the corresponding external reality, and which is embedded within the sensory experience of the perceiver.

Beyond the external senses, mental disorders also impact the function of internal faculties. Before we address that, it is important to briefly sketch out Avicenna’s view of the internal faculties. Avicenna wrote intensively on this topic both in his works of psychology and in his medical works. Many scholars have debated the nature, the function, and the Greek antecedents of internal faculties in Avicenna’s writings, arriving at different understandings of them.<sup>11</sup> Since this chapter is concerned with the sensory experience of hallucinatory content, I will confine my account to the aspects of the internal senses which are relevant to this phenomenon.

Avicenna posits a complex theory of five internal faculties/senses: common sense (*al-ḥiss al-mushtarak*), representative imagination (*al-muṣawwira*),<sup>12</sup> compositive imagination (*al-mutakhayyila*), estimation (*wahm*) and memory (*al-dhākira*). These faculties transform the sensible forms into perceptible content and then represent them

<sup>10</sup> See Susanna Siegel, “The Epistemic Conception of Hallucination,” in *Disjunctivism: Perception, Action, Knowledge*, ed. A. Haddock and F. Macpherson, (Oxford: Oxford University Press, 2008), 205.

<sup>11</sup> For more on structure and the functions of these internal senses see Harry Austryn Wolfson, “The Internal Senses in Latin, Arabic, and Hebrew Philosophic Texts,” *Harvard Theological Review* 28:2 (1935): 69–133; Deborah Black, “Estimation (*wahm*) in Avicenna: The Logical and Psychological Dimensions,” *Dialogue* 32 (1993): 219–58; Christopher Green, “Where Did the Ventricular Localization of Mental Faculties Come From?” *Journal of History of the Behavioral Sciences* 39:2 (2003): 131–42; Jari Kaukua, *Avicenna on Subjectivity* (Jyväskylä: University of Jyväskylä, 2007), 26–34; Henrik Lagerlund, “Introduction: The Mind/Body Problem and Late Medieval Conceptions of the Soul,” in *Forming the Mind: Essays on the Internal Senses and the Mind/Body Problem from Avicenna to the Medical Enlightenment*, ed. H. Lagerlund, *Studies in the History of the Philosophy of Mind* 5 (Dordrecht: Springer, 2007), 1–15; Jon McGinnis, *Avicenna*, Great Medieval Thinkers Series (Oxford: Oxford University Press, 2010), 113–16; Deborah Black, “Rational Imagination: Avicenna on the Cogitative Power,” in *Philosophical Psychology in Arabic Thought and the Latin Aristotelianism of the 13th Century*, ed. L.X. López-Farjeat & J.A. Tellkamp (Paris: Sic et Non, 2013), 59–81; Peter Pormann, “Avicenna on Medical Practice, Epistemology, and the Physiology of the Inner Senses,” in *Interpreting Avicenna*, ed. P. Adamson (Cambridge: Cambridge University Press, 2013), 91–109; Muhammad Faruque, “The Internal Senses in Nemesius, Plotinus and Galen: The Beginning of an Idea,” *Journal of Ancient Philosophy* 10:2 (2016), 119–39.

<sup>12</sup> There are many instances in *al-Nafs*, see Avicenna, *al-Shifāʾ*, *al-Nafs*, ed. Fazlur Rahman (Oxford: Oxford University Press, 1959), 44, 152, 165; Avicenna uses “*al-muṣawwira*” (representative imagination) and “*al-khayāl*” (compositive imagination) to refer to the faculty of representation: “the perceptible form retained by the faculty which is called ‘*al-muṣawwira*’ and ‘*al-khayāl*’ (165), “the faculty of ‘*al-muṣawwira*’ which is ‘*al-khayāliya*’ as you will see” (imagination) (152), and “‘*al-muṣawwira*’ and/or ‘*al-khayāl*’ which is a faculty that is located in the frontier concavity of the brain.” With that in mind, I will translate it as ‘representative imagination,’ which is F. Rahman’s translation of the “*al-muṣawwira*” as the faculty of representation.

to the intellect. The structure and the interaction between these faculties—in the process of transforming the sensible forms and working with perceptible contents—is summed up in the following passage:<sup>13</sup>

One of the animal internal faculties of perception is the faculty of fantasy, i.e., common sense, located in the forepart of the front ventricle of the brain. It receives all the forms which are imprinted on the five [external] senses and transmitted to it from them. Next is the faculty of representative imagination (*al-khayāl wal-muṣawwira*) located at the rear part of the front ventricle of the brain, which preserves what the common sense has received from the individual five senses even in the absence of the sensed objects. Know that receptivity and preservation are the function of different faculties [...] Next is the faculty which is called the ‘compositive imagination’ in relation to the animal soul, and the ‘rational imagination’ in relation to the human soul. This faculty is located in the middle ventricle of the brain near the vermiform process (*al-dūdda*), and its function is to combine certain things with others in the faculty of representative imagination, and to separate some things from others as it chooses. Then there is the estimative faculty located in the far end of the middle ventricle of the brain, which perceives the non-sensible *ma‘ānī*<sup>14</sup> that exist in the individual sensible objects, like the faculty that judges that the wolf is to be avoided and the child is to be loved. Next there is the retentive and recollective faculty (memory) located in the rear ventricle of the brain, which retains what the estimative faculty perceives of the non-sensible *ma‘ānī* existing in individual sensible objects.

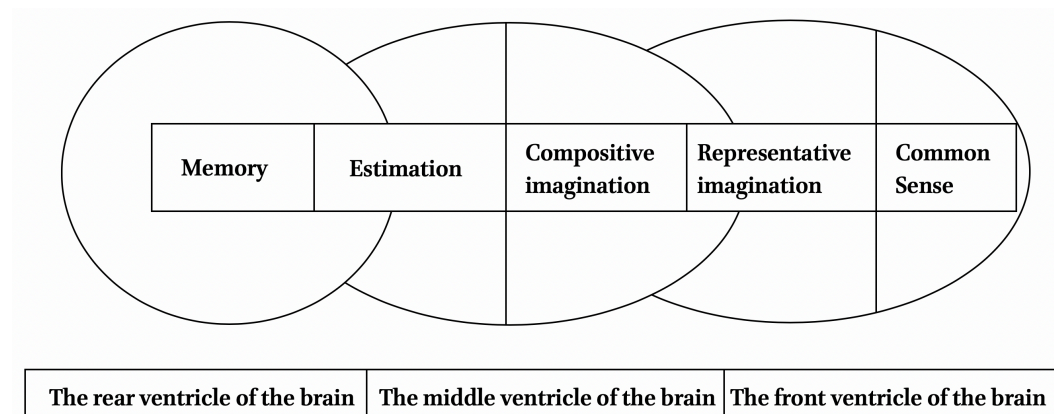
An important aspect that concerns us in this passage is the localisation and structure of the internal faculties in the brain. Prior to Avicenna, several philosophers discussed the localisation of the internal faculties in the brain, mainly Nemesius of Emesa<sup>15</sup> (to a

<sup>13</sup> Avicenna, *al-Najāt*, ed. M. Fakhry (Beirut: Dār al-Āfāq al-Jadida, 1985) 201–2, trans. Rahman, modified (see Avicenna, *al-Najāt*, Book II, trans. F. Rahman, in *Avicenna’s Psychology*, (Oxford: Oxford University Press, 1952), 31).

<sup>14</sup> I have explained the term *ma‘nā* (pl. *ma‘ānī*) elsewhere. It literally means “object of concern,” and has been used in various ways: depending on the author and the context, it can mean ‘accident’, ‘property’, ‘entity’, ‘causal determinate’, ‘connotation’, ‘intention’, or ‘concept’. But these translations do not capture what Avicenna has in mind here (see Ahmed Alwishah, “Avicenna on Animal Self-Awareness, Cognition and Identity,” *Cambridge Journal of Arabic Sciences and Philosophy* 26:1 (2016): 83–88. I believe that the use of it in this context is to denote the non-sensible property.

<sup>15</sup> According to Nemesius, “[t]he organs of imagination are the frontal cavities of the brain, the psychic pneuma within them, the nerves from them soaked with the psychic pneuma and the apparatus of the sense-organs [...] The organ of memory, too, is the posterior cavity of the brain, which they call the cerebellum and the enkranis, and the psychic pneuma within it [...] Since we say that the frontal cavities of the brain are the origin and roots of sensation, that of thought the central cavity and the posterior of memory, it is necessary to demonstrate whether this is the state of affairs, lest we should seem to believe what is being said without having a good reason for it. [...] If both the frontal and the central cavities suffer, reason is damaged together with the senses. But if the cerebellum suffers, memory alone is lost together with it without sensation and thought being harmed in any way. But if the posterior suffers together with the frontal and central ones, sense, reason and memory also are destroyed, in addition to the whole creature being in danger of perishing.” (Nemesius of Emesa, *On the Nature of Man*, trans. R.W. Sharples and P.J. Van der Eijk (Liverpool: Liverpool University Press, 2008), 101–2, 121–22).

lesser extent) Galen,<sup>16</sup> the Physician Posidonius,<sup>17</sup> Qustā ibn Lūqā,<sup>18</sup> Hunayn Ibn Ishāq, and Abū Bakr al-Rāzī.<sup>19</sup> Avicenna refines and develops their views into a systematic and holistic version that complements his views of perception and cognition. Within this version, and as is illustrated in the figure below, the seats of the internal faculties in the brain are divided into three main ventricles:<sup>20</sup>



In *al-Qānūn*, Avicenna shows how this structure of the faculties within the brain facilitates the movement of sensory and psychic pneuma.<sup>21</sup> The forepart of the brain is responsible for distributing the sensory pneuma and the activities of common sense and representative imagination. The posterior part is the place of the moving psychic

<sup>16</sup> According to Julius Rocca, for Galen: “the rational soul is responsible for sensation and voluntary motion, and resides somewhere in the brain substance. The activities of the rational soul also encompass imagination, reason and memory, but these too are not placed in any specific part of the brain.” (Julius Rocca, *Galen on the Brain: Anatomical Knowledge and Physiological Speculation in the Second Century AD*, Studies in Ancient Medicine, 26 (Leiden: Brill Academic Publishers, 2003), 245).

<sup>17</sup> According to Posidonius, “when the front part [*meros*] of the brain has been harmed, the imaginative faculty alone is injured, and when the middle ventricle [*koilia*] of the brain has been harmed, there occurs a perversion of the cognitive faculty, while when the back of the brain has been harmed below the occiput, the faculty of memory is destroyed, and with it the other two are also completely destroyed.” (As cited in Green, “Ventricular Localization,” 138.)

<sup>18</sup> According to Lūqā “If there occurs some impediment in the middle of the brain and the other parts of that brain are safe, only thinking and understanding is destroyed, and sense and motion remain in balance, as happens in the person afflicted with melancholia, which is a mixture or turmoil of the reason and the destruction of knowledge. And if there is an impediment in the upper part of the brain, memory only is destroyed and the other acts of a man are balanced and normal. Now if there is an impediment in two of these ventricles or in three, and it occupies the whole brain, there is an overall impediment to knowledge and to sense and motion, as happens in the case of epilepsy and similar things.” (Qustā ibn Lūqā, *On the Difference Between Spirit and the Soul*, in *The Transmission and Influence of Qusta ibn Luqa’s “On the Difference Between Spirit and the Soul”*, ed. and trans. J. Wilcox (Ph.D. diss., City University of New York, 1985), 219–20.

<sup>19</sup> See Green, “Ventricular Localization,” 131–142; Pormann, “Avicenna on Medical Practice,” 91–109; Faruque, “The Internal Senses in Nemesius,” 119–39.

<sup>20</sup> Avicenna, *al-Qānūn*, Book III, 7–8.

<sup>21</sup> For Galen and according to Katerina Ierodiakonou: “there are different types of pneuma, mainly the vital and the psychic pneuma, but Galen is non-committal as to their number and nature. In fact, he is less interested in the nature and types of pneuma than in its functional aspect; for the pneuma constitutes the instrument, the *organon*, of all animal’s sensation and voluntary movement as well as of other psychological faculties. (Katerina Ierodiakonou, “On Galen’s Theory of Vision,” in *Philosophical Themes in Galen*, ed. P. Adamson, R. Hansberger, and J. Wilberding, Bulletin of the Institute of Classical Studies 114 (London: Institute of Classical Studies, 2014), 241.) Like Galen, Avicenna distinguishes between different types of pneuma psychic pneuma (*al-rūḥ al-nafsānī*) and sensory pneuma (*al-rūḥ al-ḥass*). He associates the latter with the activities of common sense and representative imagination, the former with estimation and memory (see Avicenna, *al-Qānūn*, Book III, 7–8).

pneuma, the activities of memory, and where the *ma'ānī* are preserved. Moreover, he notes that “The middle part is the passageway where [the perceptible contents] are transformed from being representative [contents] to being memorable [contents], and for this reason it becomes the best place for thinking and imagining.”<sup>22</sup>

Avicenna, as we saw above, assigns two distinct faculties for imagination: representative imagination actively engages the senses through common sense; compositive imagination is connected to the activities of thinking and works closely with estimation.<sup>23</sup> While Avicenna assigns to the latter the function of “composing and separating (*al-tarkīb wal-tafṣīl*) sensible forms (*ṣūwar*)”<sup>24</sup> he designates the former to receive the sensory contents from common sense and retain them in a certain position, quantity and measurement.<sup>25</sup>

Having established that much, let us examine the impact of mental disorders on the internal faculties, beginning with the faculty of common sense.

The impact on this faculty is demonstrated in the case of vertigo (*al-dawār*), in which “one imagines everything circling around him and that his brain and body is circling too.”<sup>26</sup> In fact, Avicenna uses this case to show why we need to posit a faculty that unifies the various sensible forms of a given object, namely the faculty of common sense. In *al-Nafs*, Avicenna attributes the disorder of vertigo to the motion of the vapours causing the pneuma to move in a circular way.<sup>27</sup> He explains this view further in *al-Qānūn* by stating that “when a man spins around, the vapour and pneuma inside him circles as well.”<sup>28</sup> This movement is analogous to “the circular motion of a cup full of water for a period of time; when it stops, the water inside it continues to circulate [in the same way].”<sup>29</sup> Thus, in the same manner that the circular motion of the cup is transferred to the water and causes it to continue to move, the circular motion of a person spinning around causes the circulation of pneuma, and such motion continues even when the person ceases to spin. This internal circular motion in turn “causes one to imagine things circling around himself.”<sup>30</sup>

According to Avicenna, the causal relation between the internal motion and erroneous perception results from having a corresponding relation between “the perceiver (*al-ḥāss*)” and “external surrounding particulars.” The change within the perceiver causes one to imagine a change within the surrounding object(s) of perception.<sup>31</sup> Avicenna then argues that vertigo may also occur when one “looks at something in circular motion.”<sup>32</sup> He elaborates further by relating this case to the formation of the image of a circle out of the fast movement of dots: one “imagines the fast movement of dots as a straight line or circle.”<sup>33</sup> The dots exist in external reality as disconnected objects, but by moving in a circular way, they are connected and perceived as an image of one cohesive circle. He expands on this example by showing that vertigo may “occur from looking at things that are circulating [long enough] so that their sensible appearances

<sup>22</sup> Avicenna, *al-Qānūn*, Book III, 7–8.

<sup>23</sup> For more on the origin of this distinction see Wolfson, “The Internal Senses in Latin,” 91–101; Alwishah “Avicenna’s philosophy of mind”, 98–99; and Black, “Rational imagination,” 64.

<sup>24</sup> Avicenna, *al-Nafs*, 51, for more on the compositive imagination see Black, “Rational imagination”, 59–80.

<sup>25</sup> Avicenna, *al-Nafs*, 51.

<sup>26</sup> Avicenna, *al-Qānūn*, Book III, 113.

<sup>27</sup> Avicenna, *al-Qānūn*, Book III, 164.

<sup>28</sup> Avicenna, *al-Nafs*, 164, *al-Qānūn*, Book III, 113–14.

<sup>29</sup> Avicenna, *al-Qānūn*, Book III, 113–14.

<sup>30</sup> Avicenna, *al-Nafs*, 164, *al-Qānūn*, Book III, 113–14.

<sup>31</sup> Avicenna, *al-Qānūn*, Book III, 113–14.

<sup>32</sup> Avicenna, *al-Nafs*, 164.

<sup>33</sup> Avicenna, *al-Nafs*, 164.

are firmly established in the self.”<sup>34</sup> In this context, the form of a circulating object is transposed from the object to the perceiver causing the latter to be in the state of circular motion. Avicenna emphasises that if such a form is strong, then it would impact the internal state of the perceiver even when the latter no longer has a direct relation to the sensible object. He supports this point by asserting the principle that “every sensible object affects the sense organ with a form that is the like of it.”<sup>35</sup>

The acceptance and the affirming of this form in the perceiver is contingent on the “extent of the acceptance of it by the sense organ and how strong that form is.”<sup>36</sup> Here Avicenna seems to be inspired by Aristotle’s claims that “what has the power of sensation is potentially like what the perceived object is actually; that is, while at the beginning of the process of its being acted upon the two interacting factors are dissimilar, at the end the one acted upon is assimilated to the other and is identical in quality with it,”<sup>37</sup> and that the sense is affected by the object of perception “not insofar as each is what it is, but insofar as it is of such and such a sort and according to its form.”<sup>38</sup> Both philosophers emphasise that the sense organ or the perceiver takes on the sensible form or some equivalent of the object of the perception.

But why should one imagine everything as circulating around oneself? The answer to this question has to do with a subsequent stage of perception. In veridical perception, the faculty of estimation or the intellect has the ability to judge the perceptible content as distinct from the state of the perceiver. In the case of vertigo, however, due to a substantial change in the temperament of the brain—i.e., the vapours trapped in the brain<sup>39</sup>—estimation and intellect are ineffective and the perceiver cannot distinguish between the perceptible content and her cognitive state.

So far we saw that the case of vertigo is not only a case of mental disorder but also a case of perception that demonstrates the intricate relation between the external senses and the internal faculties. Unlike the previous cases of mental disorder, in which one imagines something does exist in the corresponding reality, in the case of vertigo one merely imagines the corresponding reality in a certain state, that is, being in circular motion.

Working closely with the common sense, the faculty of representative imagination exhibits hallucinatory content when its seat is in disorder. In *al-Qānūn*, Avicenna establishes a correlation between the healthiness of the seat of this faculty in the brain and the soundness of the function of this faculty.<sup>40</sup> If the temperament within the seat of this faculty in the forepart of the brain is strong, then it has the capacity of “preserving the sensible forms such as figures, design, sweetness, tastes, sounds, rhythm, and so on.”<sup>41</sup> The soundness of this faculty can be measured by its ability to preserve meticulous detail. To demonstrate this he uses a case that is analogous to Aristotle’s example of the geometer who apprehends a triangle in thought by employing certain images.<sup>42</sup> Avicenna argues that an architect is able to see the image of a drawn figure

<sup>34</sup> Avicenna, *al-Qānūn*, Book III, 114.

<sup>35</sup> Avicenna, *al-Qānūn*, Book III, 114.

<sup>36</sup> Avicenna, *al-Qānūn*, Book III, 114.

<sup>37</sup> Aristotle, *de An.*, 418a 3–6. All translations of Aristotle are taken from Aristotle, *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. J. Barnes (Princeton, N. J: Princeton University Press, 1984).

<sup>38</sup> Aristotle, *de An.* 3.12, 424a23–24.

<sup>39</sup> Avicenna, *al-Qānūn*, Book III, 115.

<sup>40</sup> Avicenna, *al-Qānūn*, Book III, 13.

<sup>41</sup> Avicenna, *al-Qānūn*, Book III, 13.

<sup>42</sup> According to Aristotle “The subject of imagination has been already considered in our work *On the Soul*. Without an image thinking is impossible. For there is in such activity an affection identical with one in geometrical demonstrations. For in the latter case, though we do not make any use of the fact that

once, and it imprints in his mind with all its precise details in such way that it allows him “to complete his task to the end without revisiting this image again.”<sup>43</sup> In contrast, a disorder of this faculty is exposed when it is “unable to formulate an image of that which is sensed after its relation to the sense no longer exists,”<sup>44</sup> or when this faculty suffers weakness, inefficiency, or change from its natural course, “as when one imagines something does not exist.”<sup>45</sup>

This disorder does not only occur in those who are mentally ill; it can happen to people with a healthy mind and sound judgment. Avicenna writes: “This disorder could happen to those who are mentally sound, who have full knowledge of what is good and bad, and whose communication with other people is sound—yet they still imagine the presence in external reality of people who do not exist,” and he continues: “and they imagine the sound of drummers and other things as when Galen narrated that this happens to Rūṭlas the physician.”<sup>46</sup> Galen narrated this case somewhat differently and attributed it to the physician Theophilus. In *Diseases and symptoms*, discussing delirium, Galen states:

Often delirium (*paraphrosyne*) exists in both at the same time, i.e. in a malfunctioning imagination and an improperly functioning reasoning. Sometimes it is in relation to one of these alone. For precisely in this way was it possible for Theophilus the physician, when ill, to converse sensibly on other things and recognise correctly those present, whereas he thought some flute-players had occupied the corner of the house in which he was lying and were playing continuously at the same time as crashing about. And he thought he saw them, some standing on the spot, but some sitting, in this way playing unceasingly so that they neither let up during the night, nor were in the least bit silent throughout the whole day. He had cried out continuously, ordering them to be cast out of the house. And this was the form of the delirium (*paraphrosyne*) in him. And when he was restored to health completely and was free of the illness, he described in detail all the other things that had been said and done by each of those coming in and remembered the delusion (*phantasma*) concerning the flute players.<sup>47</sup>

Thus, both philosophers affirm first that hallucinatory images do not exist in isolation, but rather are embedded within the setting of the corresponding external reality. The images of flute players are placed within the spatial boundary of the corners of the house, causing Theophilus to believe in their existence. Second, both insist that having hallucinatory content in the mind does not necessarily impact its soundness. However, one assumes that if the mind were sound, it would not allow such hallucinatory content to exist. One way to explain this is to suppose that this disorder only targets a specific aspect of the intellect in relation to imagination (representative and compositive), and not the other aspects of cognition and judgment.

Another disorder that affects the representative imagination and gives rise to hallucinatory content is what Galen identifies as phrenitis (*sirsām*)—the inflammation (swelling) within the brain diaphragm. According to Glenda McDonald, Galen “identifies

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the quantity in the triangle is determinate, we nevertheless draw it determinate in quantity. So likewise when one thinks, although the object may not be quantitative, one envisages it as quantitative though he thinks of it in abstraction from quantity.” (Aristotle, *Mem.* 1, 450a1–6.)

<sup>43</sup> Avicenna, *al-Qānūn*, Book III, 13.

<sup>44</sup> Avicenna, *al-Qānūn*, Book III, 13.

<sup>45</sup> Avicenna, *al-Qānūn*, Book III, 13.

<sup>46</sup> Avicenna, *al-Qānūn*, Book III, 13.

<sup>47</sup> Galen, *On Diseases and Symptoms*, trans. I. Johnston (Cambridge: Cambridge University Press, 2006), book 3, 4, 191.



three types of phrenitis, which are differentiated according to the manifestation of delirium that they produce. One type damages a person's capacity for rational thoughts. While the second affects their faculty of image reception. In the third type of phrenitis, both faculties are compromised."<sup>48</sup> Two important cases are used by Galen to illustrate the impact of delirium as a result of phrenitis: picking at a small object,<sup>49</sup> and the man of Rome.<sup>50</sup> Using Galen's first case, Avicenna asserts that this disorder may cause one to "pick at the fluff from the cloth, or the hay from the [muddy] wall," or something like that, or "to imagine phantoms that do not exist [in external reality]."<sup>51</sup> Thus, instead of experiencing hallucinatory content, the person affected by this disorder experiences seeing these ordinary objects as something else, causing her to act upon these objects, for instance by picking at fluff.

Finally, a disorder that affects the seat of the faculty of memory also gives rise to hallucinatory content. For Avicenna, such content may be a sign of having a disorder within the seat of memory in the posterior part of the brain. He elaborates that a disorder within memory can be identified when (1) "the sensing and sleeping of a man are sound and [yet] he imagines phantoms (*ashbāh*) of things during his waking state, and (2) when the things and the events that he sees during his waking or sleeping state—which can be described—have departed from him, and if he sees them or hears them [again] they do not remain with him."<sup>52</sup> Again Avicenna reminds us in condition (1) that when the sensing is sound and yet hallucinatory content is experienced, then the disorder must be within an internal faculty. Condition (2) simply emphasises the fact that as a result of this disorder no content can be registered within the faculty of memory.

So far we have discussed a number of cases regarding the existence of hallucinatory content that results from different mental disorders affecting different parts of the brain. In all of these cases, regardless of whether the cause of them is in relation to the senses or merely contained within the internal faculties, there is a cognitive process that gives rise to the existence of hallucinatory content. Avicenna does not directly address this process nor does he devote specific space to discussing it, but by examining the structure and functions of the internal faculties and their interaction among

<sup>48</sup> See Glenda McDonald, "Galen on mental illness: A Physiological Approach to Phrenitis" in *Philosophical Themes in Galen*, ed. P. Adamson, R. Hansberger, and J. Wilberding, Bulletin of the Institute of Classical Studies 114 (London: Institute of Classical Studies, 2014), 146.

<sup>49</sup> According to Galen "I have explained this and many other things we have mentioned here in my *Commentary on Hippocrates' Humours*: I have said that by pulling out, he could have meant the (kind of) fidgeting we see delirious people do, as if they pick nap off a garment and sticks from the ground and from fences; and he could have meant by it that the patient fidgets with a region of his body that has a painful interior ailment (hidden) under the surface as if he was pulling it out." (Galen, *Commentary on Hippocrates' Epidemics Book 1 Part 1–111*, ed. and trans. U. Vagelpohl (Berlin: De Gruyter Akademie Forschung, Walter De Gruyter, 2014), 365.)

<sup>50</sup> According to Galen "A certain man, having been left in his home in Rome with one slave who was a wool-worker, got up from his bed and came to the open window, from which he could be seen and see the people passing by. When he showed each glass vessel to the people outside, he enquired whether they might urge him to throw it. When they laughingly asked him to throw the items, and clapped their hands, he successively threw down everything he had picked up, and the people below shouted in laughter. Sometime later, he enquired of them if they might order him to throw out the wool-worker, and when they had called for him to do this, he threw down the slave; when the people saw him fall from high up they were amazed, and they stopped laughing. Running toward the fallen, crushed man, they lifted him up." (Galen, *On the Affected Parts*, trans. R. Siegel, 1976), 108.) In *al-Hāwī fī al-ṭibb*, al-Rāzī, refers to this case in the context of describing the problem of mental confusion (Abū Bakr al-Rāzī, *al-Hāwī fī al-ṭibb*, ed. M. Isma'il, (Beirut: Dār al-Kutub al-'Ilmiyya, 2000), 52).

<sup>51</sup> Avicenna, *al-Qānūn*, Book III, 78, also see 96.

<sup>52</sup> Avicenna, *al-Qānūn*, Book III, 96. On the experience of seeing "phantoms," see Bennett and Radovic in this volume.

each other, one can construct a model of this process. Our articulation of this model should centre on three key questions: Which faculty plays the critical role in generating and imposing hallucinatory contents and embedding them in the setting of the corresponding reality? Why does specific hallucinatory content arises in certain cases? And finally, is there a rudimentary distinction between the hallucinatory experience and veridical experience? The next section tackles these questions.

### 3 The Cognitive Process of Generating and Imposing the Hallucinatory Contents

Since estimation is considered by Avicenna to be the chief and ruling faculty among the internal faculties, it is critical for us to respond to the first question by examining its role in the context of hallucinatory experience. Estimation plays many functions within the internal faculties.<sup>53</sup> Of these, two are essential for the process of perception: controlling the internal faculties and advancing and facilitating the perceptible content circulated among them. The failure to perform these functions properly is largely responsible for the emergence of hallucinatory content.

The seat of the faculty of estimation is in the middle ventricle of the brain. This unique position allows it to, on the one hand, oversee and control the entire function of the brain—as Avicenna puts it, “the brain in its entirety is the instrument for estimation.”<sup>54</sup> On the other hand, this position enables estimation to facilitate and control the flow of perceptible content between faculties in the forepart and the posterior of the brain. This psychological function stems from the physiological structure within the brain, which was proposed by Galen. In *On the Usefulness of the Parts*, Galen rejected the view that the pineal gland “regulates the flow of psychic pneuma in the canal between the middle and posterior ventricles of the brain.”<sup>55</sup> Instead he argues that: “this part which must be such as to control and govern the passage of the pneuma and which they cannot discover, is not the pineal body but the epiphysis [*vermis superior cerebelli*] that is very like a worm and is extended along the whole canal. Those versed in anatomy have named it for its shape alone and call it the vermiform epiphysis.”<sup>56</sup>

Upholding this view, Avicenna placed the cerebellar vermis under the power of estimation to facilitate the flow of perceptible content among the internal faculties. He asserts that “when estimation wills it, *cerebellar vermis* (*dūdda*), separates between its parts (the lower and the upper parts).”<sup>57</sup> This organ “connects the pneuma of representative imagination, via the compositive imagination, to estimation,” allowing the images (from the representative imagination) “to be imprinted in the faculty of estimation.”<sup>58</sup> Thus, perceptible content advances from one stage of perception to another faculty if and only if estimation permits. Contrary to this, if “estimation is opposed to certain content” within representative imagination, such content “would cease to exist for it (i.e., the estimation)” (*bāṭlat ‘anhā*), thereby not advancing to the compositive imagination. Evidence of this point, according to Avicenna, is that the images retained in the

<sup>53</sup> For more on this see Black, “Estimation (wahm) in Avicenna,” 219–58.

<sup>54</sup> Avicenna, *al-Ishārāt wa-al-tanbīhāt II*, ed. S. Dunyā (Cairo: Dār al-Ma’ārif, 1957), 381; see also id., *al-Nafs*, 268.

<sup>55</sup> See Gert-Jan Lokhorst, “Descartes and the Pineal Gland”, *The Stanford Encyclopedia of Philosophy*, ed. E.N. Zalta (Winter 2018), <https://plato.stanford.edu/archives/win2018/entries/pineal-gland/>.

<sup>56</sup> Galen, *On the Usefulness of the Parts*, tr. M.T. May (Ithaca: Cornell University Press, 1968), part 1, 420.

<sup>57</sup> Avicenna, *al-Nafs*, 153.

<sup>58</sup> Avicenna, *al-Nafs*, 153.

representative imagination are not always imaginable (*mutakhayila*) for the soul: “otherwise we would be obliged simultaneously to imagine many forms—that is, each form in the representative imagination.”<sup>59</sup> I take his point to be that without the filtering function of estimation we would have innumerable raw and unsubstantiated images that could each be developed into meaningful perceptible content, but which considered together make no sense.

In addition to the above primary function, estimation has the ability to synthesise the image and the experience that is associated with it. For example, according to Avicenna, a dog fears the image of a stick because it has been beaten by a stick in the past; it does not recall the stick that beat him, nor the circumstance of the beating, but when it sees a stick, it associates the visual image with an experience of being beaten as if it were being beaten now, in the present.<sup>60</sup>

Before proceeding to the reconstruction of the cognitive process involved in hallucinatory experience, let us review the contribution of the estimation to that process:

Two homogenous qualities form a mixture, which is perceived by one external sense.

1. Estimation has access to and control over all the internal faculties.
2. It controls the flow of perceptible content between faculties.
3. It follows from (2) that it has power to decide whether or not the raw content from the senses and representative imagination should be advanced and incorporated into other stages of cognition.
4. Finally, it has the ability to synthesise perceptible content and the experience or the meaning that is associated with it.

We are now in a position to address the questions raised at the end of the first part and to offer an account of the cognitive process of generating and imposing hallucinatory content.

Provided that estimation has the central position and leading role within the internal faculties, a disorder that targets its seat would severely impact the function of the brain as whole. Avicenna explicitly emphasises this point by stating that: “the strength (*qūwwa*) of the faculties of estimation and intuition indicates the strength of the temperament of the brain as whole, and the weakness of [these faculties] indicates the existence of disorder within the temperament of the brain.”<sup>61</sup>

But what kind of impact would the internal faculties experience when estimation becomes weak or ineffective? In general, based on what was established above, the impact would affect (1) the management and control of the other faculties and (2) the facilitation of the flow of perceptible contents between the forepart and posterior parts of the brain. Such impact, especially (1), would significantly contribute to the appearance of hallucinatory content. Avicenna, in *al-Nafs*, assigns the role of restraining of This claim is a the activities of other faculties to estimation and the intellect. For him, in the event of one’s being sick or in a state of fear, a certain faculty, especially a powerful one, would run rampant with its activity unless the estimation “restrains its excessive movements.”<sup>62</sup> Such a faculty in this case will “predominate and carry out its activities.”<sup>63</sup>

<sup>59</sup> Avicenna, *al-Nafs*, 154.

<sup>60</sup> Avicenna, *al-Nafs*, 185 and 164, See also Alwishah, “Avicenna on Animal Self-Awareness,” 8.

<sup>61</sup> Avicenna, *al-Qanūn*, Book III, 13.

<sup>62</sup> Avicenna, *al-Nafs*, 171.

<sup>63</sup> Avicenna, *al-Nafs*, 171.

Later, Avicenna identifies the compositive imagination as just such a powerful faculty, capable of acting independently and imposing its own perceptible content without the oversight of estimation or the intellect. Before we explain this point, it is important to keep in mind that a disorder within the intellect also affects estimation because estimation is set up to serve the intellect directly and the latter is directly in charge of the former.<sup>64</sup> By the same token one may assume that the control of the intellect over other faculties, the compositive imagination in particular, would be impacted if estimation were disordered.

Avicenna meticulously charts out the interplay between the intellect and the compositive imagination, showing at what stage the compositive imagination predominates and imposes its perceptible content. At the outset, he affirms that in a healthy conscious state, this faculty is preoccupied by the content of the external senses received from the common sense and representative imagination, all in service of the rational soul. Now the relation of the compositive imagination to the rational soul can be described in two ways: first by having the intellect use this faculty along with common sense to compose and separate perceptible contents in a way that serves its purpose. Second, when the intellect prevents this faculty from imagining something “that does not correspond to something existing in external reality,”<sup>65</sup> so that such images would not affect the content of the intellect itself. The second way is applicable to our topic, for it suggests that without the scrutiny and engagement of the intellect, the compositive imagination by its nature has the propensity to create content that has no correspondence to external reality. When compositive imagination is preoccupied by these two undertakings, then, Avicenna concludes, “its activities are weakened.”<sup>66</sup>

However, the role of the compositive imagination changes significantly when the intellect—along with estimation—is under one of these conditions: preoccupied, in an unconscious state (sleep), in the emotional state of fear, or ill.<sup>67</sup> Avicenna describes the last case in *al-Qānūn*, when he shows that a disorder may target the mind itself. The signs of this disorder are “when one is saying that which he should not say, is pleased with that which he should not be pleased with, is hoping that which he should not hope for, is asking for that which he should not ask, is doing that which he should not do, is afraid of that which he should not fear, or is unable to narrate something that can be narrated.”<sup>68</sup>

When the intellect is affected by any of these cases, two things may occur: (1) “the specific activities of the faculties of representative imagination and compositive imagination are intensified so that the images they bring would be represented as being sensed”; and (2) “one may hear sounds and see colours that do not exist in external reality, nor are caused by something in external reality.”<sup>69</sup> The correlation between (1) and (2) is critical in explaining the development of hallucinatory content. For it seems that (1) is naturally entailed by (2). That is to say, the strength of the compositive imagination accompanied with its propensity to bring about contents that do not correspond to external reality creates favourable conditions for the emergence of hallucinatory content.

We can infer from the above that there are passive and active conditions that foster the existence of hallucinatory content. The former involve the ineffectiveness of

<sup>64</sup> See Avicenna, *al-Nafs*, 50.

<sup>65</sup> Avicenna, *al-Nafs*, 171–72.

<sup>66</sup> Avicenna, *al-Nafs*, 171–72.

<sup>67</sup> Avicenna, *al-Nafs*, 170.

<sup>68</sup> Avicenna, *al-Qānūn*, Book III, 96.

<sup>69</sup> Avicenna, *al-Nafs*, 170.

the intellect along with estimation, and the latter involve the strength of the compositive imagination which, in turn, moves and empowers the representative imagination, as we will shortly see.<sup>70</sup>

Now, when compositive imagination gains its independence, it “becomes stronger and turns toward the representative imagination to make use of it [for its own purpose]. And the unity between them becomes stronger.”<sup>71</sup> The compositive imagination presses the representative imagination, with the help of common sense, to display its own perceptible content. Thus, by being liberated from the constraints of the intellect and estimation, the compositive imagination comes into the state of what Immanuel Kant much later refers to as “the free play of imagination,”<sup>72</sup> serving its own power and no longer validated by the rational or estimative judgments. This, as we stated above, provides an opportunity for the existence of hallucinatory contents.

But how are these contents brought about and why is one image or perceptible content rather than another produced? To answer this, we turn to Avicenna’s view of emotions and the different powers responsible for them—especially the ‘concupiscible’ (*shahwāniya*), ‘irascible’ (*ghaḍabiya*) and conative (*nuzū’iya*) powers—and their relation to the compositive imagination. In *al-Nafs*, Avicenna makes three important remarks concerning emotion that are essential to our discussion. First, change within the temperament of the body evokes different emotional states, such as fear, desire, and anger.<sup>73</sup> Second, the conative power and compositive imagination serve each other: the former motivates the latter to act, and the latter serves the former “by exhibiting specific images that are preserved in it.”<sup>74</sup> Third, in some cases the emotional powers “drive estimation to carry out its objectives (*muqtaḍāhā*).”<sup>75</sup>

Avicenna demonstrates the third point by referring to the case of “the desire of animals to break out of their shackles and cages.”<sup>76</sup> He explains that estimation presents to the compositive imagination of a caged animal images that contrast with its current caged state: images, say, of freely grazing in a field. These images then generate feelings of joy or pleasure in the animal. The contrast between the joy and pleasure produced by the imagined image and the animal’s current sensory state causes the animal to move its bodily parts in pursuance of that joy and pleasure, and so we say that the animal has a desire to be free. In this sense, estimation makes use of compositive imagination in order to satisfy a certain motive or desire.<sup>77</sup> In the case of hallucination, one assumes that estimation has no control over compositive imagination, but it merely plays a passive role in facilitating the demands and needs of the emotional powers.

With this in mind we can see how emotional powers take over and demand certain images that correspond to their states, be it desire, fear or anger and so on. Thus, we can infer that the specificity of a hallucinatory content in the disordered mind is motivated by an emotional state. The emotional state of fearing, for example, may impel, directly or indirectly through estimation, the compositive imagination to display and impose the image of a scary flame.

<sup>70</sup> Cf. Black, “Rational imagination,” 65–67.

<sup>71</sup> Avicenna, *al-Nafs*, 172.

<sup>72</sup> See Immanuel Kant, *Critique of the Power of Judgment*, trans. P. Guyer and E. Matthews (Cambridge: Cambridge University Press, 2000), 5: 217, 101–103, and 5: 316–17, 194–95. Black uses this term too (Black, “Rational imagination,” 67).

<sup>73</sup> Avicenna, *al-Nafs*, 197.

<sup>74</sup> Avicenna, *al-Nafs*, 51.

<sup>75</sup> Avicenna, *al-Nafs*, 197.

<sup>76</sup> Avicenna, *al-Nafs*, 195.

<sup>77</sup> Avicenna, *al-Nafs*, 195–96. I used this case in my essay on animal cognition: see Alwishah, “Avicenna on Animal Self-Awareness,” 11.

Another relevant question needs to be tackled: how can hallucinatory content such as smoke, flames, or flute players, which have no corresponding objects in external reality, be embedded within the setting of external reality, for instance, in the corner of a house or in a bedroom? To deal with this question we need to recall the function of the faculty of representative imagination. One of its core functions is to establish the particular position of perceptible content within the setting of external reality. Avicenna makes clear that the representative imagination retains the representative form (*sūwra khayliyya*) in such way that (1) each part of the representation corresponds to a part of the object represented, and (2) the dimensions and the distances between the parts of the representation correspond to the dimensions and distances between the parts of the object represented.<sup>78</sup> Representative imagination confers the ability to capture the sensible form along with its spatial attributes. By the same token, it has the ability to embed perceptible content that is imposed upon it by the compositive imagination within the setting of corresponding external reality.

It is worth mentioning that in a number of places, Avicenna treats the common sense and representative imagination as one item, or as he puts it, “as one faculty,”<sup>79</sup> that actively works to perceive and retain the sensible forms. While we saw that compositive imagination has the ability of free play, and that it engages both the anterior faculty and the posterior faculty, representative imagination lacks this capacity for creativity and mainly directs its attention to common sense and its sensible objects. Avicenna writes: “the representative imagination is the last place in which the sensible forms reside and it [always] faces the sensible objects through the common sense.”<sup>80</sup> However, despite the fact that it primarily directs its act toward the anterior sensory content, it has the capacity to retain and establish perceptible content regardless of whether “the incoming [content] is from the external reality or from inside (the mind).”<sup>81</sup> In this sense, this faculty acts as a middle point between the anterior sensory content and posterior perceptible content.

This position of the representative imagination helps us to understand how hallucinatory content is embedded in the setting of external reality. In the case of the hallucinatory image of flame, for example, one assumes that after the compositive imagination imposes this image upon the representative imagination, the strategic position of the latter allows it to access external reality through the common sense and to embed the image of the flame within the field of vision of the perceiver.

We now have a rich picture of the interplay between these two faculties that helps us to see how hallucinatory content is imposed and embedded within the setting of corresponding external reality. Perhaps this is a good place to sum up what we have discussed so far and to present it schematically:

1. When the intellect or the faculty of estimation is impacted by some disorder, it loses the ability to control and regulate other internal faculties.
2. When (1) happens, the compositive imagination acts freely and robustly, imposing its own perceptible content—hallucinatory content—on the anterior faculties (representative imagination and the common sense).
3. The emotional powers move the compositive imagination either directly, or indirectly through estimation, to bring about perceptible content—in this case hallucinatory content—that reflects or satisfies their own states (that is, desire, fear, or anger).

<sup>78</sup> See Avicenna, *al-Najāt*, 210, also see Alwishah, “Avicenna on Animal Self-Awareness,” 82.

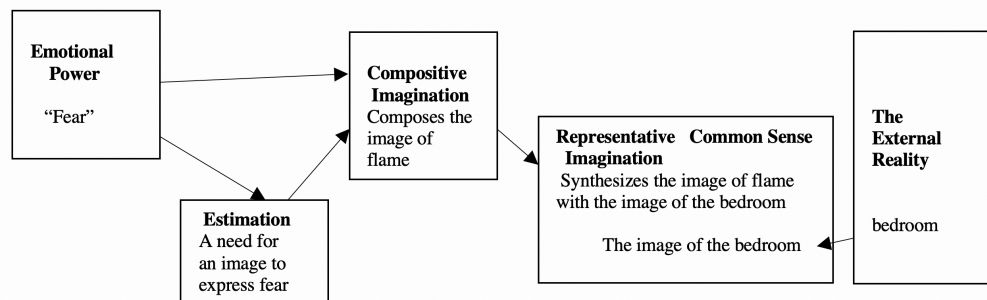
<sup>79</sup> Avicenna, *al-Nafs*, 165.

<sup>80</sup> Avicenna, *al-Nafs*, 169.

<sup>81</sup> Avicenna, *al-Nafs*, 170.

4. In turn, the compositive imagination utilises the representative imagination and common sense and imposes its content on these faculties to serve its own objective.
5. In the case of hallucinatory content, the anterior faculties (representative imagination and common sense) serve the compositive imagination by displaying its content and embedding it in the setting of corresponding external reality.

To further illustrate this process let us consider the case of fear and the perceptible content of the flame in the following figure:



Having constructed and presented an account of the cognitive process of hallucinatory content, the following question arises: is there a rudimentary distinction between hallucinatory experience and veridical experience, provided that, as Susanna Siegel puts it, “the most basic phenomenal character in both experiences is the same?”<sup>82</sup> For Avicenna, a disordered mind does not distinguish between these two experiences. He explicitly argues that “the person who is mad, fearful, weak, or asleep sees rising phantasms just as he sees them when he is in a healthy condition, and he [possibly] hears voices too.”<sup>83</sup> Thus, in the case of the madman, he will see an image of an illusory object in the same way he sees it in actuality. The hallucinatory images that are synthesised in the representative imagination will appear in the common sense as if “they existed in external reality.”<sup>84</sup> This is because “the perceptible impression which is caused by external input and that which is caused by internal input are represented in it (the common sense). They merely differ in their relation [to it].”<sup>85</sup> That is to say, while they have a different relation to the faculty of common sense—one is from the inside and one from the outside—in the end, both the external and internal content is represented in the common sense as an object that is ready to be advanced to different stages of cognition. Within their contents, there is no mark or attribute that indicates their origin, that is, whether they represent an appropriate object or not. Avicenna emphasises this point by arguing that “what it is to be an actual sensible object is to be that which is represented,” and if the internal content—hallucinatory content—“is able to be represented,” then the condition that applies to the latter is the same as to the former.<sup>86</sup> In other words, both are treated as representational content.

However, as we saw above, Avicenna affirms that there is a variation between these two experiences by stating “they merely differ in their relation” to the common

<sup>82</sup> Siegel, “The Epistemic Conception of Hallucination,” 205.

<sup>83</sup> Avicenna, *al-Nafs*, 173.

<sup>84</sup> Avicenna, *al-Nafs*, 172–73.

<sup>85</sup> Avicenna, *al-Nafs*, 172–73.

<sup>86</sup> Avicenna, *al-Nafs*, 173.

sense. Thus, while hallucinatory and veridical experiences in this sense have the most basic phenomenal character in common, they differ in their relation to that which is perceived of them. But this seems to be insignificant, for as long as the representational content of both is the same, these two experiences have the same phenomenal character. The image of flame, for example, in both experiences is the same, simply because in both cases it is fully developed within the common sense and representative imagination. Regardless of the source, one would have similar qualitative experience of the flame. That is to say, the image of the flame in reality and the flame in the hallucination present the same image of a brightly shining object and invoke the same conceptual association.

One may argue that in the former case the flame is genuine, but in the latter case it is merely an apparent flame: we should be in a position to distinguish between them and to ascertain the position or locality of their objects—be it in the mind or in external reality. Avicenna would argue against this critical remark on two grounds: (1) all that we have is the representation of the flame, and in both cases the image has the same phenomenal character; and (2) since, in the case of hallucination, the role of the intellect and estimation is ineffective, the ability to distinguish between these two images of a flame is less likely to be effective.

In the event of lacking oversight from the intellect and estimation, whatever exists in the common sense and the representative imagination is counted as an object of perception. In the case of a disordered mind, one is in no position to discriminate whether the origin of perceptible content is in the common sense or the representative faculty. For this reason, as we mentioned earlier, he asserts that the madman, for example, “sees rising phantasms as he sees them when he is in a healthy condition.”<sup>87</sup> When the intellect regains its control over the compositive imagination and “brings it in to itself,” these perceptible forms and images fade away.<sup>88</sup>

Having established that much, we can see how the dynamic relation between the intellect and estimation on the one hand and the faculties of compositive imagination and representative imagination on other hand, plays a critical role in generating hallucinatory content. While disorders within the former faculties produce a favourable environment for the existence of hallucinatory contents, the robustness of the latter faculties significantly contributes to their development and fulfilment.

## 4 Conclusion

Within Avicenna’s complex scheme of internal faculties, one can uncover a unique account that explains the cognitive process underling the mental disorders, and hallucination in particular. In this account, one sees a clear synthesis between Avicenna’s understanding of the human brain and his views of perception and cognition. This synthesis helps us to understand how the structure of the brain, that is, the localisation of the internal faculties, complements the process of advancing perceptible contents from the common sense to the higher faculties and vice versa. The significance of this account lies not only in its ability to describe the conditions that give rise to hallucinatory contents, but also in that it provides a model for how they are embodied in external reality. Finally, in his inquiry into the case of hallucination, Avicenna demonstrates the affinity between medical and philosophical conceptions of mental disorders and shows how such an investigation is important for our understanding of human cognition.

<sup>87</sup> Avicenna, *al-Nafs*, 173; see also Avicenna, *al-Ta’liqāt*, 175 (I am grateful to Jari Kaukua for drawing my attention to this passage).

<sup>88</sup> Avicenna, *al-Nafs*, 173.



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