

AVICENNA ON ANIMAL SELF-AWARENESS, COGNITION AND IDENTITY

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Abstract. The purpose of this paper is to present a comprehensive and systematic study of Avicenna's account of animal self-awareness and cognition. In the first part, I explain how, for Avicenna, in contrast to human self-awareness, animal self-awareness is taken to be indirect, mixed-up (*makhlūt*), and an intermittent awareness. In his view, animal self-awareness is provided by the faculty of estimation (*wahm*); hence, in the second part, I explore the cognitive role of the faculty of estimation in animals, and how that relates to self-awareness. The faculty of estimation, according to Avicenna, serves to distinguish one's body and its parts from external objects, and plays a role in connecting the self to its perceptual activities. It follows that animal self-awareness, unlike human self-awareness, is essentially connected to the body. In the third part of the paper, I show that, while Avicenna denies animals awareness of their self-awareness, he explicitly affirms that animals can grasp their individual identity, but, unlike humans, do so incidentally, as part of their perceptual awareness.

Résumé. L'objectif de cet article est de produire une étude complète et systématique de la doctrine avicennienne de la conscience de soi et de la connaissance chez les animaux. Dans la première partie, j'explique comment, selon Avicenne, la conscience de soi chez l'animal, contrairement à la conscience de soi chez l'homme, est considérée comme indirecte, mélangée (*makhlūt*) et intermittente – la conscience animale étant, dans sa vision, issue de la faculté estimative (*wahm*). Aussi la seconde partie porte-t-elle sur la fonction cognitive de la faculté estimative chez les animaux et sur la manière dont cette fonction se rapporte à la conscience de soi. Pour Avicenne, la faculté estimative sert à distinguer notre corps et ses parties des objets extérieurs, et a pour rôle de connecter le soi à ses activités perceptives. Il s'ensuit que la conscience de soi chez l'animal, contrairement à la conscience de soi chez l'homme, est essentiellement connectée au corps. Dans la troisième partie de l'article, je montre qu'Avicenne, tout en refusant aux animaux la conscience de leur conscience de soi, affirme expressément qu'ils sont capables de percevoir leur identité individuelle mais que, contrairement aux êtres humains, ils le font de façon accidentelle, cette conscience étant une partie de leur conscience perceptive.

Avicenna holds that humans have essential, direct, and continuous self-awareness. He also holds that humans and non-human animals (henceforth, just “animals”) have many of the same internal faculties and perceptual capacities. This naturally leads him to investigate two questions: do

animals also have self-awareness? If so, how does it differ from human self-awareness? Avicenna *explicitly* argues that animals are self-aware (*shu'ūr bi-al-dhāt*). But he also argues that animal self-awareness is fundamentally different from human self-awareness: it is indirect, “mixed up” (*makhlūt*), and intermittent.

This paper has three parts. In the first, I provide textual evidence showing that, for Avicenna, animals are self-aware, but their self-awareness is indirect, “mixed-up,” and intermittent. As we will see, the texts indicate that, for Avicenna, animal self-awareness is provided by the faculty of estimation (*wahm*). So, in the second part, I explore the cognitive role of the faculty of estimation in animals, and how that relates to self-awareness. As we will see, for Avicenna, the faculty of estimation serves to distinguish one’s body and its parts from external objects, and plays a role in connecting the self to its perceptual activities. It follows that, for Avicenna, animal self-awareness, unlike human self-awareness, is essentially connected to the body.

Having investigated animal self-awareness and adopting the model of human self-awareness, Avicenna sets to examine two closely tied questions: do animals have awareness of self-awareness? And do they have a concept of individual identity (*al-huwiyya al-juz'iyya*)? In the third part of the paper, I show that, while Avicenna denies animals awareness of their self-awareness, he explicitly affirms that animals can grasp their individual identity, but, unlike humans, do so incidentally, as part of their perceptual awareness.

I. CHARACTERIZING ANIMAL SELF-AWARENESS

In *al-Mubāḥathāt*, Avicenna considers the question, whether “animals, like humans, are aware of themselves.”¹ He posits three possible hypotheses:

[Animals] may (a) be aware of themselves through their material organs, (b) or perhaps there is an awareness of themselves by a common thing that oversees (*iṭlāl*), or (c) perhaps they are aware of only what they sense and imagine, without being aware of themselves or the activities of [their] internal faculties. We must reflect on this matter.²

Avicenna, as we will soon see, rejects (b) and (c) and defends (a): animal self-awareness is mediated by a material faculty – the faculty of

¹ Avicenna, *al-Mubāḥathāt*, ed. Muḥsin Bīdārfar (Qum, 1992), §289, p. 120 (throughout I use M. Bīdārfar’s edition). Unless otherwise indicated, all the translations from Arabic are my own.

² *Al-Mubāḥathāt*, §290, p. 120.

estimation. But it is striking that Avicenna excludes from consideration the hypothesis that animals, like humans, have direct self-awareness.

Avicenna thinks that human self-awareness is direct: no activity of thought or representation stands between the self and its awareness of itself. The human self, he says, is intrinsically aware of its existence and its essence: “The self-awareness of the essence of the self is intrinsic (*gharīzī*) to the self, and [it] is the same as its existence; thus there is no need for something external to the [self] for the self to be aware of itself.”³ What stops us from saying the same of animals?

Avicenna says that “animal souls are not immaterial as are human souls, and [hence] they are not aware of themselves,” but then immediately adds, “for if they became aware of themselves, they would do so through their estimative faculties.”⁴ This suggests that he rejects *direct* animal self-awareness on Aristotelian grounds: only an immaterial soul can think of itself; animals souls are material; hence animal souls cannot think of themselves. In *De anima*, Aristotle argues that, “in the case of objects which involve no matter, what thinks and what is thought are identical,” but, in the case of objects that involve matter, this is impossible.⁵ Avicenna agrees: only “that which in itself is abstracted from material attachments (*i.e.*, the intellect),” he says, “cognizes itself.”⁶ But, as we saw, Avicenna does not take this to be a reason to reject animal self-awareness altogether, suggesting instead that it shows that animal self-awareness, if there is any, must involve some intermediate material faculty, and so be indirect.

³ Avicenna, *Al-Ta'liqāt*, ed. Ḥasan al-‘Ubaydī (Baghdad, 2002), §72, p. 125. The concept of directness also extensively debated by Ahmed Alwishah in “Avicenna’s philosophy of mind: self-awareness and intentionality,” Ph.D. Dissertation, (UCLA 2006) pp. 67–84; and later by Jari Kaukua, *Avicenna on Subjectivity* (Jyväskylä, 2007), pp. 118–31; Deborah Black, “Avicenna on self-awareness and knowing that one knows,” in Shahid Rahman, Hassan Tahiri, Tony Street (eds.), *The Unity of Science in the Arabic Tradition* (Dordrecht, 2008), pp. 66–81.

⁴ *Al-Ta'liqāt*, §47, p. 116; see also 47, p. 117.

⁵ Aristotle, *De anima* 430a 3–5. All translations of Aristotle are taken from *The Complete Works of Aristotle*, ed. Jonathan Barnes (Oxford, 1984).

⁶ Avicenna, *al-Ishārāt wa-al-tanbīhāt* II, ed. Sulaymān Dunyā (Cairo, 1957), p. 371. Recently, P. Adamson examined, in a great length, the connection between intellection and immateriality in Avicenna’s *al-Ishārāt* and his commentators’ views; see Peter Adamson, “Avicenna and his commentators on Human and divine self-intellection,” in Dag N. Hasse and Amos Bertolacci (eds.), *The Arabic, Hebrew and Latin Reception of Avicenna’s Metaphysics* (Berlin, 2012), pp. 97–122.

Avicenna also says that animal self-awareness is a “mixed-up awareness” (*shu ‘ūr makhlūt*):⁷ it “is neither separable nor abstract, but rather it is mixed-up.”⁸ It is not clear what he means by “mixed-up,” and this is not a term he ever explicitly defines, at least in the context of psychology. However, in *al-Mubāḥathāt*, he considers the question, why “the awareness of ourselves is not ‘mixed-up awareness’, as is the case with the rest of the animals,”⁹ and says, in answer:¹⁰

1. I can be aware both of myself as a single whole (*jumla*) and as composed of different parts (*murakkab min aḥād*) – *i.e.*, body and soul.
2. I can be aware of one part of my single whole – my soul – without being aware of any other parts of my single whole – *e.g.*, my body or the parts of my body.

This suggests that a “mixed-up” self-awareness lacks these features. So animal self-awareness, being “mixed-up,” is an awareness of the self as a whole that is inseparable from an awareness of its parts. But this implies in turn that “mixed-up self-awareness” is an awareness that is inextricable from sensory perception, since awareness of the body and its parts must involve perceptual faculties.

Avicenna seems to think, then, that an animal is a composite of body and soul, that the soul is the form of the animal, and that animal self-awareness consists in a mixed-up awareness of the soul – an awareness of the soul as it is related to the body. Bahmanyār, a disciple of Avicenna, raises a curious question about this: “Why is it that ‘the white’ (*al-bayād*) is not aware of its essence being mixed-up with that in which it is existent, despite having an essence in the same way animals have essences?”¹¹ Later on, and in a similar context pertaining to the issue of animal self-awareness, as mixed-up awareness, Avicenna uses “white wall” instead of

⁷ See *al-Mubāḥathāt*, §668, pp. 224–5. I am grateful for J. McGinnis for suggesting this translation of “*shu ‘ūr makhlūt*.” In Avicenna’s writings on natural science and metaphysics the term *makhlūt* usually means mixed with matter, element, and substance (see for example Avicenna’s *The Physics of the Healing*, trans. Jon McGinnis (Provo, 2009), 1.10.6; 4.10.4). However, in the context of animal self-awareness, the term *makhlūt* is used in a broader sense to include the meaning of a subject being confused and not clear about the object of its perception or its awareness. For, as we will see soon, unlike the human self-awareness which is direct and transparent, animal self-awareness is indirect and confused with animal perceptions.

⁸ *Al-Mubāḥathāt*, §657, p. 221.

⁹ *Ibid.*, §502, p. 175.

¹⁰ *Ibid.*, §503, p. 176; see also §669.

¹¹ *Ibid.*, § 509, p. 177.

just “white.”¹² Hence, a white wall is, like an animal, a composite of essence and material properties. But nobody would say that a white wall has a mixed-up awareness of its essence. So what is different about the relation between the essence of the animal and the whole animal, on the one hand, and the essence of the wall and whole wall, on the other?

Avicenna acknowledges that “giving a reason for this is a difficult task.”¹³ Earlier, Avicenna seems committed to the claim that self-awareness requires separability. But here, in response to Bahmanyār, he gives this up: “whatever has a separable essence is aware of itself, but the reverse is not necessarily true – that everything that has no separable essence is unaware of itself.”¹⁴ But why would he think this helps answer Bahmanyār’s question?

The answer comes later in *al-Mubāḥathāt*. First, he reiterates the claim that animal self-awareness is mixed-up:

- (i) “There is no part in a non-human animal that is both the subject and the object of the awareness (*al-shā‘ir wa-al-mash‘ūr*).”¹⁵ So, in animals, “the subject is part of the object of the awareness.”¹⁶

But, later, clarifying this relationship, he says,

- (ii) “It is not sufficient for something to be a subject of awareness¹⁷ that it relates to its essence in any way whatever – otherwise the wall would be aware of its whiteness. Rather it [the subject] must be abstracted (*mujarrad*), or *close* to being abstracted (*bi-ḥukm al-mujarrad*), in such way that that which joins or associates with it does not obstruct it from being abstracted.”¹⁸

¹² See *ibid.*, § 666, p. 224.

¹³ *Ibid.*, § 511, p. 177.

¹⁴ *Ibid.*

¹⁵ *Ibid.*, § 504, p. 176.

¹⁶ *Ibid.*, § 505, p. 176.

¹⁷ The term used in this passage is *mudrikan*, and it normally translates as ‘someone who is perceiving something’, but it can also translate as ‘someone who is aware of something.’ I prefer the latter, since it is consistent with other passages where Avicenna speaks of the subject as aware (not “perceptive”) of his essence; I believe this passage emphasizes that point further.

¹⁸ *Al-Mubāḥathāt*, § 666, p. 224. For more on Avicenna’s theory of abstraction see, Dag N. Hasse, “Avicenna on abstraction,” in Robert Wisnovsky (ed.), *Aspects of Avicenna*, Princeton Papers: Interdisciplinary Journal of Middle Eastern Studies, vol. 9 (Princeton, 2001), pp. 39–72; Jon McGinnis, “Making abstraction less abstract: The logical, psychological and metaphysical dimensions of Avicenna’s theory of abstraction,” in *Proceedings of the ACPA* 80 (2007), pp. 169–83; Cristina D’Ancona, “Degrees of abstraction in Avicenna: how to combine Aristotle’s *De Anima* and *Enneads*,” in Simo Knuuttila, and Pekka Kärkkäinen (eds.), *Theories of Perception In Medieval and Early Modern Philosophy* (Dordrecht, 2008), pp. 47–71.

So, for something to be self-aware, it must be “abstracted” or “close to abstracted” from everything else. To be abstracted is to be separated; so to say that an essence is abstracted is to say that it is not mixed together with other things. A human self, according to Avicenna, is abstracted (or as Avicenna uses the term separable *mufāriq*) from its body in just this sense: that is why human self-awareness is not mixed-up.

But apparently something can also be “close to being abstracted,” while still being mixed together with other things, so long as those other things do not obstruct it in some way. Presumably Avicenna thinks that the essence of the sheep is “close to being abstracted” in this sense. On the one hand, as we have seen, the sheep is only aware of itself (or anything else) via its sensory faculties, and so in relation to its body: it cannot be a self or subject without being in relation to body. So the essence of the sheep cannot be entirely abstracted, in the way the essence of a human can. But perhaps what Avicenna has in mind is this: even when in this relation to its body, the essence of the sheep retains some degree of autonomy or independence, and this autonomy is what enables self-awareness, what counts as being “close to being abstracted.” By contrast, then, the essence of the wall, is not “close to being abstracted”: its essence has no degree of autonomy or independence – there is absolutely no degree of separation between its essence and material parts – and so it is not in any sense a subject of awareness.

Avicenna uses his famous “floating man” thought experiment to argue that we humans have a special kind of self-awareness, that is entirely separate from any awareness of bodies. Imagine (*yatawahham*) that you are created all at once and as a whole (*kāmilan*), floating (*ṭāʾif*) in the air, having had no sensory contact with your body, its parts, or any other bodies. Even so, Avicenna insists, you would affirm your own existence and be aware of yourself.¹⁹

This invites an obvious question: what about a “floating sheep”? Would she affirm her own existence and be aware of herself? Imagine a sheep, created all at once and as a whole, floating in the air, having had no sensory contact with her body, its parts, or any other bodies. Though Avicenna never discusses such examples, it appears that he is committed to saying that such a sheep would not affirm her own existence or be aware of

¹⁹ Avicenna, *al-Shifāʾ, al-Nafs*, ed. Fazlur Rahman (Oxford, 1959), p. 16. See the full translation of the passage with this thought experiment in Hasse, *Avicenna’s De Anima in the Latin West*, p. 80.

herself: her self-awareness, as we have seen, is a mixed-up awareness, inseparable from her awareness of her own body.

So far, I have argued that, for Avicenna, animal self-awareness, unlike human self-awareness, is indirect and mixed-up. The question may also arise, as it does in the case of human self-awareness, whether animals are aware of themselves continuously or not. Humans, Avicenna says, are continuously self-aware: you are never not aware of yourself. As he puts it, “the self is aware of itself absolutely and unconditionally. The self is aware of itself always and not intermittently.”²⁰ He goes further. “Our awareness of our selves is itself our existence,”²¹ he says. So without self-awareness, there is no self.

But once again, what is true here for humans is not true for animals. Since animal self-awareness is mixed-up, it is not unconditional, but is instead contingent upon the cognition of the self in relation to the body. But that sort of cognition of the body is not continuous, for it is contingent on the existence of the object of the cognition, *i.e.*, the body itself.

Avicenna thinks that animal cognition is exclusively in the present (*al-ān*) and only concerns present events: animals neither anticipate the future nor have the ability to recall memories at will. It follows that animals lack the ability to anticipate future events. A human “expresses the psychological emotion of fear (*khawf*) because he thinks that something bad will take place in the future that would harm him,”²² but “non-human animals express this emotion mostly with respect to the present or in relation to a present [event].”²³ Further, Avicenna thinks that animals are unable to connect the emotion of fear in the present with the psychological state of hope (*rajāʿ*), for they lack the ability to construct any such future-oriented psychological state.²⁴

But animals often do seem to act in preparation for future events. Avicenna thinks that they do this by instinct (more on this later), and that, when they do this, they grasp a future event as if it were present. So, when an ant moves food to its anthill, this is not because it predicts that rain will fall, but rather because it experiences the rain as if it were happening now (*yakūn fī hādihā al-waqt*).²⁵

²⁰ *Al-Taʿlīqāt*, §34, p. 111, for more see Alwishah, “Avicenna’s philosophy of mind,” p. 83; Kaukua, *Avicenna on Subjectivity*, pp. 101–4; and Black, “Avicenna on self-awareness,” p. 65.

²¹ *Al-Taʿlīqāt*, §70, p. 125.

²² *Al-Nafs*, p. 205.

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ *Ibid.*, p. 206.

In *Nicomachean Ethics* 3.10, Aristotle says that a lion rejoices when he sees an ox because he thinks he will make a meal of it.²⁶ Avicenna, by contrast, would say that the lion rejoices because he is experiencing the taste of the ox, as if he were eating it now. (This experience is due to a past association between seeing and tasting oxen, to be explained below). Thus, for Aristotle, the lion hunts the ox in anticipation of some future experience, while, for Avicenna, the lion hunts the ox to maintain his present state, and so can not properly be said to anticipate eating the ox.

Animals also seem to act on memories of past events. Avicenna follows Aristotle²⁷ in affirming that animals have memory in a sense, but denying that they can deliberately recall past events: “most animals have memory, but remembering – the ability to recall [images] from the past – is restricted ... to humans.”²⁸ He adds that animals cannot long for (*ishtiyāq*) something from the past.²⁹ He seems to think that animals have what we would now call *implicit* memories – “stores of information based on past experiences, where those experiences are not consciously recollected, though the information can influence present behavior”³⁰ – but lack *episodic* memory: “conscious recollection of experiences from one’s past.”³¹

For Avicenna, animal memories are the product of an association between a present image and a past experience. The faculties involved in this process will be discussed in detail below, but here is a quick example: a dog fears the image of a stick because he has been beaten by a stick in the past; he does not recall the stick that beat him, nor the circumstance of the beating;³² but the association means that the dog, when he sees a stick, imagines being beaten as if he were being beaten now, in the present.³³ So, just as the lion cannot properly be said to anticipate eating the ox as a future event, so too the dog cannot properly be said to remember his abuse as a past event.

²⁶ Aristotle, *Nicomachean Ethics* III.10, 1118a 19–23.

²⁷ According to Aristotle, “of all animals man alone is capable of deliberation: many animals have memory and are capable of instruction, but no other creature except man can recall the past at will.” (*History of Animals* I, 488b 23–26).

²⁸ *Al-Nafs*, p. 185.

²⁹ *Ibid.*

³⁰ David DeGrazia, “Self-awareness in animals,” in Robert Lurz (ed.), *The Philosophy of Animal Minds* (Cambridge, 2009), p. 209.

³¹ *Ibid.*

³² *Al-Nafs*, p. 206; he uses this example earlier in a different context in pp. 184–5: cf. Deborah Black, “Estimation (*wahm*) in Avicenna: The logical and psychological dimensions,” *Dialogue*, 32 (1993): 219–58, on p. 226.

³³ *Al-Nafs*, p. 206.

This gives us a second sense, then, in which animal self-awareness is not continuous in the way that human self-awareness is. For us, successive moments of self-awareness are linked by memory and anticipation. But for animals, there are no such links from moment to moment.

II. THE ROLE OF THE ESTIMATIVE FACULTY IN ANIMAL SELF-AWARENESS

Animal self-awareness is indirect, mixed-up, and intermittent. Each of these properties stems from the nature of the cognitive faculty responsible for animal self-awareness. That faculty, according to Avicenna, is the faculty of estimation. Avicenna never explicitly justifies this claim. Scholars have mentioned it, but nobody has tried to explain it in any detail in relation to the attribute of mixed-up self-awareness.³⁴ That is my goal here: to explain in some detail how the faculty of estimation works, and how it provides animals with an indirect, mixed-up, and intermittent self-awareness.

Let me begin with a sketch of the basic facts about the faculty of estimation in animal cognition. For Avicenna, estimation plays a critical role among the internal faculties (*al-ḥawāss al-bāṭina*) – common sense (*al-ḥiss al-mushtarak*), representative imagination (*al-muṣawwira*),³⁵ compositive imagination (*al-mutakhayyila*), and memory (*al-dhākira*).³⁶

³⁴ J. Kaukua, for example, has an extended section on animal self-awareness; however he failed to address the concept of mixed-up awareness (see Kaukua, *Avicenna on Subjectivity*); see also Black, “Estimation (*wahm*) in Avicenna,” Dag N. Hasse, *Avicenna’s De Anima in the Latin West* (London, 2000); Luis Lopez-Farjeat, “Self-awareness (*al-shu’ūr bi-l-dhāt*) in human and non-human animals in Avicenna’s psychological writings,” in Alejandro Vigo; Ana Marta González, Georg (eds.), *Oikeiosis and the Natural Bases of Morality* (Hildesheim, 2012), pp. 131–8; and Thérèse-Anne Druart, “Animal cognition according to the philosophers in Islamic world: Aristotle or Galen,” (Forthcoming).

³⁵ There are many instances in *al-Nafs* (pp. 44, 152, 165); Avicenna uses “*al-muṣawwira*” (representative) and “*al-khayāl*” (imagination) to refer to the same faculty: “the perceptible form retained by the faculty which is called ‘*al-muṣawwira*’ and ‘*al-khayāl*’ (p. 165), “the faculty of ‘*al-muṣawwira*’ which is ‘*al-khayāliyya*’ as you will see” (imagination) (p. 152).

³⁶ For more on structure and the functions of these internal senses see Black, “Estimation (*wahm*) in Avicenna,” and Jon McGinnis, *Avicenna, Great Medieval Thinkers series* (Oxford and New York, 2010), pp. 113–16. Deborah Black, “Rational imagination: Avicenna on the cogitative power,” in Luis Xavier López-Farjeat & Jörg Alejandro Tellkamp (eds), *Philosophical Psychology in Arabic*

Physiologically, estimation occupies a central position in the brain – the middle ventricle of the brain – that allows it to have direct access to all these faculties. Avicenna goes so far as to claim that “the brain in its entirety is an instrument for the faculty of estimation.”³⁷ Functionally, and as we will see below, estimation manages and assists the other internal faculties in abstracting and transforming the sensible into perceptual content. For this reason, Avicenna declares that estimation in an animal is positioned in “the same way that the intellect is positioned in humans.”³⁸ Specifically, estimation (a) judges perceptual contents and controls the other internal senses in the process of grasping sensible properties; and (b) perceives and judges *ma'nā* (I will explain below). In what follows, I show that it is only by examining these two functions that one begins to unfold the relation between estimation and self-awareness. With that in mind, let's begin with (a).

2.1. *Judging Perceptual Contents*

According to Avicenna, for an animal to represent the complex structure of external reality, it must construct a parallel system of representations mirroring that structure, and this system of representations. For example, the relation between the property in the sensible object and the respective internal faculty is established on the principle that “the presence of an object will not take place [in the perceiver], unless the presented object (*al-mahḍūr*) is presented to the subject (*al-hāḍir*) at a certain position and distance.”³⁹ In other words, (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.

Avicenna links this process to the faculty of estimation, arguing that “if one understands this with respect to the representative imagination, one will understand it with respect to the estimative faculty as well, which perceives its object only as attached to the individual form of the

Thought and the Latin Aristotelianism of the 13th Century (Paris, 2013), pp. 59–81, on pp. 60–5.

³⁷ *Al-Ishārāt*, p. 381, also in *al-Nafs*, p. 268.

³⁸ *Al-Ta'līqāt*, §47, p. 116. It is noteworthy that while Aristotle and Avicenna deny animals the ability to think, reason, or believe, unlike the latter, the former denies that there is an intellect-like faculty in animals (see Aristotle's *De anima* 404b4–6, 428a20–21, 433a11–12, 414b17–19, 415a7–8, and 434a6–11).

³⁹ Avicenna, *al-Najāt*, ed. Majid Fakhry (Beirut, 1985), p. 210.

representative imagination.”⁴⁰ The faculty of estimation judges the relation between the image in the representative imagination, and the form that that image represents, as it is in the external object. By being attached to the individual form present to the representative imagination, estimation grasps, for example, the figural outline of Socrates and judges some of his limbs to be on the right side and others on the left side. Unlike the intellect – which, on his view, can add the definition (*ḥadd*) of right or left to any given object without any consideration to its spatial structure⁴¹ – the faculty of estimation, working via representative imagination, cannot judge something to be right or left unless it is qualified by a definite position both in external reality and in the image that represents that reality.

Estimation, in Avicenna’s view, not only links between the representational form and its subject; it also actively controls access to perceptual content. It decides whether and when the raw materials of sense and imagination get incorporated into other areas of cognition. For example, the images in the representative imagination do not have access to memory unless the faculty of estimation permits and facilitates this access.⁴² He also thinks that estimation controls and manages perceptual content in ways related to motivation. In the case of the animals, estimation generates a psychological state that causes the animal to act in ways that satisfy certain needs or desires, including appetites, sexual drives, and desires like “the desire of the animal mother who just gives birth to be with her child ... or the desire of animals to break out of their shackles and cages.”⁴³ For example, he says that estimation presents to the 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 (*ladhdha*) 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.⁴⁴ And so we say that the animal has a desire to be free. In this sense estimation makes use of imagination in order to satisfy a certain motive or desire. The interplay between these two faculties takes a more complex form in relation to judging non-sensible properties (as we will see soon).

⁴⁰ *Al-Nafs*, p. 194.

⁴¹ Avicenna writes “in the domain of the intellect the concept of right and left can be added to the square ... just as one universal concept is joined with another” (*al-Nafs*, p. 191).

⁴² *Al-Nafs*, pp. 153–4.

⁴³ *Al-Nafs*, p. 195.

⁴⁴ *Ibid.*

What does this have to do with animal self-awareness? It is natural to suppose that, if estimation is going to play this role of controlling access to perceptual content, issuing “special judgments,” judging the relation between the object perceived and the representation of that object, and guiding the production of motivational psychological states, it must be in some sense *aware* of all these contents and states, and how they fit together as a whole. As we will see, this is precisely what Avicenna seems to infer. This inference becomes more evident in our investigation the second function of estimation below.

2.2. *Perceiving and Judging the Ma‘nā*

In addition to judging the perceptual contents, Avicenna assigns estimation to perceive and judge the *ma‘nā*. *Ma‘nā* (pl. *ma‘ānī*) 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’.⁴⁵ But these translations do not capture what Avicenna has in mind here. I will use the transliterated Arabic: we can infer its meaning from Avicenna’s use. Avicenna offers a number of accounts regarding the nature of the *ma‘nā*. Here is the most comprehensive passage:

Sometimes we judge concerning the sensible through *ma‘ānī* we do not sense, either because they are not sensibles in their natures at all, or they are sensibles, but we do not sense them at the time of the judgment. As far as those which are not sensibles in their nature, they are like hostility, wickedness, or aversion that the sheep, for example, perceives in the form of the wolf. In sum the *ma‘nā* is that which causes the sheep to flee from the wolf. On the other hand, it is also the harmony which a sheep perceives in the form of its flock, and in sum, *ma‘nā* is that which makes the sheep enjoy the company of its flock. These (*ma‘ānī*) are perceived by the animal soul without the help of the senses.

⁴⁵ In Alwishah 2006 (“Avicenna’s philosophy of mind,” pp 127–52), I distinguished three types of *ma‘nā* in Avicenna’s works – individual (*shakhṣī*) *ma‘nā*, universal (*kullī*) *ma‘nā*, and representative (*mutaṣawwar*) *ma‘nā*. I also discussed the various different meanings and views of *ma‘nā* in *kalām* (as an accident, property, and causal determinant) and the Scholastic tradition. Following many modern scholars, especially D. Black, I translated *ma‘nā* as intention for purposes of continuity. D. Gutas recently criticized Black and Alwishah especially for this translation without giving an argument or reason for why such a translation is, in his words, “grossly distorting the philosopher’s [Avicenna’s] thought.” Furthermore, Gutas seems to have overlooked footnote 286 in the dissertation where I explicitly referred to p. 7 of Marmura’s translation of *Ilāhiyyāt*, the only edition of this text cited in the bibliography. (See Dimitri Gutas, “The empiricism of Avicenna,” *Oriens*, 40 (2012), pp. 430–1.)

Therefore, the faculty whereby they are perceived is another faculty: let us call it the faculty of “estimation.” As for those which are sensibles, we see, for example, something yellow, and we judge that it is honey and something sweet; for the sense does not convey this to it [the perceiver] at this moment, though it is of the genus of the sensible. However, the judgment itself is not what is sensible at all, even though what constitutes this judgment is part of the genus of the sensible, for this is not perceived at that time. Rather it is a judgment that can be applied and which might be a false judgment – this also belongs to the faculty of estimation.⁴⁶

Here Avicenna distinguishes two types of *ma‘ānī*: sensible and non-sensible. Sensible *ma‘ānī* are properties that were perceived by the senses, but not at the time of the *judgment* [of the sensible object] (*lā naḥissuhā waqt al-ḥukm*).⁴⁷ For example, suppose that,

1. I see and taste a yellow object, and judge it to be sweet.

The yellow image, and the sensation of sweetness – products of the senses – are retained in my representative imagination. My judgment – a product of estimation – is retained in my memory. Later,

2. I see a yellow object without tasting it.

This alone – my current sensory representation – provides no grounds for my faculty of estimation to judge that the object is sweet. But estimation has access to all the internal faculties, and sometimes acts “as if it is an imaginative, reflective and remembering faculty.”⁴⁸ In particular, estimation can now synthesize my present sensory representation of yellow and the sensible *ma‘nā* of the sweetness that is preserved in memory, so that,

3. I judge the yellow object to be sweet.

This process also allows Avicenna to explain mistaken judgments: the faculty of estimation does not always access the appropriate sensible *ma‘nā* from memory. I might mistakenly judge the honey to be abominable because of its resemblance to bile (*marāra*). In this case, the faculty of estimation attributes a *ma‘nā* of bitterness instead of sweetness. Estimation tends to select *ma‘ānī* based upon the most recent perceptual experiences it retains in memory. So if the last yellow object I tasted was bitter, then estimation will lead me to judge this yellow object to be bitter as well.

Avicenna’s views about sensible *ma‘ānī* are relatively clear. In contrast, the concept of a non-sensible *ma‘nā* is ambiguous and complex. A non-sensible *ma‘nā* is said to be an immaterial non-sensible property of a particular object that is inseparable from the sensible properties of that

⁴⁶ *Al-Nafs*, p. 166.

⁴⁷ Cf. Black, “Estimation (*wahm*) in Avicenna,” pp. 225–6.

⁴⁸ *Al-Nafs*, p. 168.

object.⁴⁹ His example, from the passage quoted above, is the hostility that the sheep perceives in the wolf. A non-sensible *ma'nā* is supposed to be perceived by estimation, not through the senses: estimation, he says, “attains *ma'ānī* in the sensible objects – whose forms the senses have already abstracted – without having any of these *ma'ānī* being sensed.”⁵⁰ These characterizations raise many puzzles. It is not clear how a non-sensible immaterial property could depend on the sensible material properties of an object, or how a material faculty could perceive such a property, if not through the senses.

For these reasons, al-Ghazālī⁵¹ and Fakhr al-Dīn al-Rāzī, key critics of Avicenna, argue that the concept of non-sensible *ma'nā* is incoherent, and that there is no need for the faculty of estimation, understood as the faculty that perceives such properties. Suppose the faculty of estimation in the sheep perceives a *ma'nā* of hostility in a wolf; al-Rāzī argues that estimation either (a) perceives the *ma'nā* of hostility independently of its perception of the sensible form of the wolf, or (b) in its perception of the sensible form of the wolf. But if (a), then the *ma'nā* of hostility is a universal, so it is an object of intellect, and therefore beyond the grasp of any material faculty. And if (b), then the *ma'nā* of hostility must be perceived through that faculty which perceives the sensible form: the senses.⁵²

Avicenna agrees that the *ma'nā* of ‘hostility’ is particular rather than universal (as al-Ṭūsī later argues).⁵³ But it is hard to see out how estimation could perceive a non-sensible property without the aid of the senses, and so separate from the other sensible properties, given that those sensible properties are supposed to be inseparable from it. Hasse suggests that it is not “certain knowledge which the internal sense has. It is rather an

⁴⁹ According to Avicenna, estimation “does not abstract this form from [all] appendages of matter because it grasps it in particulars and according to some matter and in relation to it and connected with the sense-perceived form, which is accompanied by the appendages of matter and with the cooperation of imagination [i.e., the storage place of forms] with regard to them” (*al-Nafs*, pp. 60–1; trans. Hasse, p. 131).

⁵⁰ *Al-Nafs*, p. 183.

⁵¹ See al-Ghazālī, the *Incoherence of the Philosophers*, ed. and trans. Michael Marmura (Provo, 1997), pp. 187–8. I have chosen al-Rāzī’s critique because it raises a more direct and robust objection. Al-Ghazālī’s critiques, as Black shows, occasionally “rest upon a misrepresentation of Avicenna’s views” (see Black, “Estimation (*wahm*) in Avicenna”, p. 222).

⁵² Al-Rāzī, *Lubāb al-Ishārāt wa-al-tanbīhāt*, ed. Aḥmad Ḥijāzī al-Saqqā (Cairo, 1986), p. 121.

⁵³ *Al-Ishārāt*, II, p. 379.

indicator pointing to the significance or meaning of an image with which this indicator is connected... The ‘intention’ is something in the object and not in the perceiver. It is an attribute of the object, such as ‘hostility’, which has a connotation for the perceiver.”⁵⁴

Hasse’s view faithfully reflects Avicenna’s remarks concerning the non-sensible *ma‘nā* and its relation to estimation. But more work is needed to explain how the non-sensible *ma‘nā* is abstract, and thereby addresses al-Rāzī’s objection. Hence, we need two things: first to understand the relationship between the process of abstracting the non-sensible *ma‘nā* and the process of abstracting ordinarily sensible properties, in order to derive a clear picture when and how the non-sensible *ma‘nā* is grasped by estimation; and second to justify the need for a specific faculty to grasp this *ma‘nā*.

With that in mind, here is a sketch of a proposal.⁵⁵ We begin with the assumption that the object – *i.e.*, the wolf – contains proper and common sensible properties, such as color, shape, magnitude, position, quantity, quality, number, and so on. We add that, within these properties, *ma‘ānī* are embodied as (to borrow Hasse’s phrase) “connotational attributes,” attributes “in the object” that have “connotation for the perceiver.”⁵⁶ But the *ma‘nā*, as it is in the object, is not yet *defined* as such: it is not yet properly called “hostility.”

Now suppose the sheep, seeing the wolf through its external senses, abstracts the sensible properties of the wolf in the usual way. These carry along with them the embodied but not yet defined *ma‘ānī*. The sensible properties (along with the embodied but undefined *ma‘ānī*) are then reconstituted in the faculty of representative imagination, allowing the sheep to entertain an image of the sensible form of the wolf. Now, at this stage, the faculty of estimation, which has full access to the faculty of representative imagination and its contents, perceives the *ma‘ānī* along with the sensible properties it is embodied within. Keep in mind that estimation is a cognitive faculty, and so by itself has no direct access to sensible objects. So it would make no sense to suppose that estimation somehow reaches out into the world and acquires information about the wolf directly. Given the first part of my proposal, we can make good on

⁵⁴ Hasse, *Avicenna’s De Anima in the Latin West*, pp. 131–2.

⁵⁵ Compare this proposal with Black, “Estimation (*wahm*) in Avicenna,” pp. 221–4, and *id.*, “Imagination and estimation: Arabic paradigms and Western transformations,” *Topoi*, 19 (2000): 59–75, pp. 60–2; Hasse, *Avicenna’s De Anima in the Latin West*, pp. 131–41.

⁵⁶ Hasse, *Avicenna’s De Anima in the Latin West*, p. 132.

both of Avicenna's stipulations: first, that the *ma'nā* exists in the object, among the object's sensible properties; second, that it is immaterial and so not perceived by the senses.

However, this still does not address al-Rāzī's objection, namely why we need a faculty to perceive this *ma'nā*. To justify the need for estimation, we need to be reminded that for Avicenna estimation is not only perceiving the *ma'nā* from the representative imagination, but also judging it to be as such. Estimation, according to Avicenna, is "the faculty of judgment in animals,"⁵⁷ and it cannot avoid judging an object in the same manner that the intellect cannot avoid cognizing an object.⁵⁸ The *ma'nā* in our case is yet to be judged as 'hostility.' The sheep's estimation cannot judge its *ma'nā* by appealing to its experience with the wolf (as with the case between the dog and the stick) – for it has not seen the wolf before,⁵⁹ nor by having access to some sensible properties of wolf (as with the case of the sensible *ma'nā* of the honey). With that in mind, then by what means does it judge the *ma'nā* that it perceives to be 'hostility'? To answer this question we need to first draw on the early discussion of how animals neither anticipate future events nor remember past ones as past, but imagine themselves experiencing those events now or as present. And second, we need to incorporate Avicenna's use of the term *wahm* as the common and preferred language for setting up a "thought experiment," especially in his writings on the natural sciences.⁶⁰ For example, he uses this term at the beginning of his thought experiment of the "floating man", as we saw in the earlier section: "We say anyone among us must imagine (*yatawahham*) that it is as if he is created all at once and as a whole (*kāmīlan*)."⁶¹ Elsewhere, in *Physics*, he makes use of it in claiming that "every mobile is divisible (as will become clear later) and has parts whose corporeal nature does not prevent the estimative faculty 'from imagining them' ('*an tawahhumi-hā*) at rest."⁶² In both cases the term *wahm* denotes a specific case of a thought experiment where one is to imagine something that could happen in the present moment.

⁵⁷ *Al-Nafs*, p. 167.

⁵⁸ For Avicenna, judging the sensible and non-sensible properties is a survival mechanism for animals: see *al-Nafs*, p. 163.

⁵⁹ *Al-Nafs*, p. 183.

⁶⁰ I am indebted to the reviewer of *ASP* for suggesting these two critical points which help me to construct a coherent account to justify the need of estimation in the above case.

⁶¹ *Al-Nafs*, p. 16.

⁶² Avicenna, *The Physics of the Healing*, 2.1.14, translated by J. McGinnis.

Thus, estimation, through imagination, imagines a possible state of affairs and then judges whether it is good or bad. The relation between estimation and imagination in making a judgment is explained further when Avicenna asserts that, unlike intellectual judgment, estimative judgment is imaginative and depends on “the association with particular and sensible forms.”⁶³

Having established that, I argue that in order for the sheep’s estimative faculty to judge its *ma‘nā*, it imagines a certain possible state of affairs as actually present, namely, being attacked by the wolf. It draws upon the resources of its memory and associates between the image of the wolf and other related images in the memory such as sharp claws, yellow teeth, and hungry growl. This association, in turn, invokes estimation so that imagines (*tatawahhamu*) itself as being attacked by the wolf at the present moment – recall animals do not anticipate future events. ‘Imagining being attack by a wolf’ may come as result of having the images of the claws, yellow teeth, and hungry growl in proportion to the size of the wolf. Such relation yields the possibility of the “attacking.” All these lead the sheep to judge the imagined possible state of affairs as bad, that is, to experience the wolf to be a hostile object, and flee from it.⁶⁴

Thus, and to sum up, one way to respond to al-Rāzī’s objection is to show that estimation, in Avicenna’s view, has the ability of constructing a possible imagined state of affairs as present that helps the animal to judge the non-sensible properties of an object.

For animals to make a judgment, however, may not be as simple as the judgment exercised by the sheep that is fleeing from the wolf, rather it may be process that involves competing desires or motives. Avicenna is aware of this and hence he presents an interesting example, the case of the hunting dog, to demonstrate a complex case of animal judgment. This case, as we will see, is not only essential to the function of estimation, but also to the animal’s self-awareness.

2.3. *The Case of the Hunting Dog*

According to Avicenna, by virtue of having estimation, “some hunting dogs, even when hungry, do not eat their prey but bring it to their master,

⁶³ *Al-Nafs*, p. 167.

⁶⁴ Cf. Kaukua, *Avicenna on Subjectivity*, pp. 114–17.

and nursing animal mothers put their offspring's life before their own."⁶⁵ In both of these cases, estimation appears to undergo a complex process in making these judgments, which result in a clear distinction between one's self and the other animal or human. I will focus on the first case.

Suppose a hunting dog is trained to retrieve what his master kills. Within this training he experiences (a) getting treats while giving the prey to his master and (b) getting beaten while eating his prey. These experiences are stored in his memory. Recall that Avicenna thinks that animals only grasp events as present. So, given the past association between the image of the prey, and experiences (a) and (b), estimation produces psychological states in the dog that block his desire to eat the prey and motivate him to take the prey to his master.

The motivation is produced by the contrast between the two competing images the dog experiences: one, produced by his present experience of the taste of blood in his mouth; the other, produced by estimation, his experience, as if present, of getting a treat or being beaten. In this context, then, the dog must be in some sense aware of the presence of these two competing forces within his self: the desire to eat the prey, on the one hand, and the desire to be rewarded together with the fear of being punished, on the other hand. Suppose the dog loses his master. He would then alter his judgment, and eat the prey. It is hard to see how the process of making all of these judgments could be merely mechanical. It seems instead that it would require, on the part of estimation, an awareness of the self, and the relation of the self to the prey and to the master.

It is tempting to go further, and suppose that the dog judges that he has a duty toward his master, and that he ought to do his duty rather than give in to his desire. But Avicenna is committed to explaining the case without appeal to reason, just in terms of the judgment of the faculty of estimation, as based on previous experiences. Centuries prior to Avicenna, Chrysippus argued that dogs can reason, presenting the following case:

The dog focuses on the fifth unprovable with several disjuncts when he comes to a crossroads and, having tracked down the two roads along which the wild animal did not go, starts off at once along the third without tracking down it. For, our early author says, he is implicitly reasoning as follows: "The animal went either this way or this or this; but neither this way nor this: therefore this way."⁶⁶

⁶⁵ *Al-Ishārāt*, v. p. 9. Thanks to Druart who brought this passage to my attention, I am using her translation (Druart forthcoming).

⁶⁶ This translation is taken from Sextus Empiricus, *Outlines of Scepticism*, edited by Julia Annas and Jonathan Barnes (Cambridge, 2000), I, 69.

Avicenna would deny that the dog makes any such rational inference. Instead, based on what we have established above, he would suggest that, after sniffing the first two roads, the faculty of estimation was unable to produce a judgment about where the prey went. In this case, and as we saw in the case of the yellow object, estimation, based on previous experience, supplies the *ma' nā* of the scent of the prey to the image of the third road, without necessitating any sniffing. In other words, estimation judges the third road by synthesizing its previous experience with the present image of the crossroads. Prior to the crossroads, the dog (a) knows that there is a prey, and (b) from the previous experience, he knows that he smells scent when he sees a prey. With that in mind and having failed to sense scent in the first two roads, his estimation steps in, supplies the scent as a sensible *ma' nā*, and judges that the remaining road has that scent.

I have been describing the cognitive functions of the faculty of estimation. It remains to explain why Avicenna might have thought that estimation, given its cognitive functions, gives rise to animal self-awareness.

Avicenna makes it clear, in the case of human self-awareness, that awareness of the self must be presupposed for every activity:

For when I say 'I act,' I express my self-awareness [along with the act itself]; otherwise how do I know that I am the one who is doing the act, except that I consider my awareness of my self first, and then I consider the act, all this without considering anything external to my awareness of my self.⁶⁷

Similar reasoning supports the claim that the acts of estimation presuppose a kind of self-awareness, though Avicenna never quite says this. But it is suggested by his response to Bahmanyār, when he says that, in non-human animals “the subject is part of the object of the awareness.” He is more explicit in the following passage:

When someone is aware of something, the object of their awareness (*al-mudrik*)⁶⁸ must be present to them, regardless of whether this [subject] is mixed-up or not mixed-up. If a donkey, [for example], is aware of his self as something mixed up [with his body], then his self must be present to him with that mixed up [whole]. Thus, in all these cases [mixed up or not] the self of the donkey is present (*mawjūda*) to him all at once.⁶⁹

This suggests a strong principle:

Awareness: If *x* is aware of something, then the self of *x* must be present to *x*, either as separable or as mixed-up.

⁶⁷ *Al-Ta'liqāt*, §60, p. 122.

⁶⁸ The editor vocalizes it as *al-mudrak* (the subject of the awareness), but based on the context of the passage it should be written as *al-mudrik*.

⁶⁹ *Al-Mubāhathāt*, § 665, p. 223.

From this principle, we can infer that the self is present to the faculty of estimation. We can think of this in two ways. In controlling and appropriating perceptual content and psychological states within animal cognition, the faculty of estimation must be aware of the animal's mixed-up nature, and so, in virtue of this principle, its self must be present to it.

When judging the relation between the represented image in the representative imagination and the existent image in the external figure, estimation enables the animal to be aware of itself as subject – as the reference point for the sensible object and its represented image. And so the process of representing a sensible object presupposes a level of self-awareness, an awareness, by the subject, of itself as a subject, distinguished from what it perceives and what stands in spatial relations to it.

Again, the process of abstracting and judging *ma'nā* presupposes self-awareness. Whether the estimative judgment is based upon previous experience or imagining the self in a certain state of affairs, there must be an awareness of something that is being judged, and an awareness of the self that is doing the judging. For the dog to judge that 'this is a harmful object', he must not only be aware of his experience with the stick, but also be aware that it is *his own* experience – that there is a self that owns this experience, and that that same self is making a judgment of fleeing from the present object. In other words, the dog judges the stick to be harmful not by seeing it only, but by directing his attention to his memory, and being able to form a cognition and an awareness of his self.

In judging the *ma'nā* of hostility in the form of the wolf, the sheep must be aware of her own existence as an object independent of the wolf. The image of the wolf is a threat to something that represents the totality of the sheep, and not merely to the external senses that perceived this image. The act of fleeing suggests that the sheep is aware of its relation to the wolf and that the sheep has the ability to judge the wolf in relation to itself, and in doing so the sheep is aware of itself. Centuries after Avicenna, Arnauld, replying to Descartes, emphasizes the self-awareness in Avicenna's example, he writes:

It seems incredible that it can come about, without the assistance of any soul, that the light reflected from the body of a wolf onto the eyes of a sheep should move the minute fibers of the optic nerves, and that on reaching the brain this motion should spread the animal spirits throughout the nerves in the manner necessary to precipitate the sheep's flight.⁷⁰

⁷⁰ Descartes, *The Philosophical Writings of Descartes*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge, 1984), vol. II, p. 144.

Avicenna would agree with Arnauld: the sheep's perception of the wolf must involve a state of conscious awareness. Avicenna might have gone further, and claimed that the sheep must be aware of its self at the same time that its self is aware of the existence of the wolf. This self-awareness obtains in the faculty of estimation by virtue of its grasp of the *ma'nā* of hostility in the perceptual content. The act of fleeing suggests that the faculty of estimation of the sheep arrives at two judgments: (a) that the wolf is external to the totality of the sheep; (b) that the self needs to depart from that which it perceives in order to preserve itself. For, first, the sheep needs to attribute the hostility to the wolf, not itself: otherwise, it might attempt to attack the wolf. And, second, the sheep needs to recognize that the hostility is hostility toward it (something that it would not judge if it were another wolf, for example).⁷¹

So this suggests that we can attribute to Avicenna the view that, by being aware of their cognitive activities, animals are aware of themselves. We might say that, for Avicenna, an animal grasps itself as what R. J. Gennaro calls "I *qua* this thing (or "body") as opposed to other physical things."⁷²

Two essential and related issues to the animals self-awareness arise later in Avicenna's *al-Mubāḥathāt*, concerned with two types of questions, namely whether animals are aware their self-awareness, and whether they have concept of individual identity (*huwiyya*) and otherness (*ghayriyya*). The last part of this paper is devoted to exploring these issues and their relations to animal self-awareness.

III. ARE ANIMALS AWARE THAT THEY ARE AWARE OF THEMSELVES?

Beyond the capacity of perceiving and judging perceptual content, estimation, according to Avicenna, perceives that something is perceived. Aristotle ascribes this capacity to the human soul.⁷³ Avicenna ascribes it to both the intellect and the faculty of estimation. In Avicenna's view, "perceiving that something is perceived (*idrāk annahā udrikat*) does not involve the senses. For perception is not a color to be seen or a voice to be heard; rather it is something that can be perceived by an action of the intellect or the faculty of estimation."⁷⁴ I suspect that Avicenna here is

⁷¹ I am indebted to D. Sanson for this observation.

⁷² Rocco J. Gennaro, "Animals, consciousness, and I-thought," in *The Philosophy of Animal Minds*, pp. 189–200, on p. 189.

⁷³ See *De Anima* 425b 11–2.

⁷⁴ *Al-Nafs*, p. 67.

assigning this capacity to the estimation of animals and to intellect with respect to humans only – there is no reason to assume that he ascribes it to two cognitive faculties of humans.

With respect to animals, Avicenna establishes this capacity in order to bridge the gap between the capacity of perceiving in general and self-awareness. As we explained earlier, for Avicenna, animal self-awareness is a quasi-perceptual awareness: indirect, mixed-up, and essentially dependent on perceiving a sensible object. In *al-Mubāḥathāt*, he affirms this point further when he claims that both animals and humans “have the awareness of seeing a particular object,” provided that they are aware of themselves.⁷⁵ The difference between animals and humans, however, is that while both require external and internal intermediary organs (*ālāt*) in order to be aware of seeing an object, humans need no organs for being aware of themselves.⁷⁶

Thus, given that animals are aware of themselves and that this awareness is contingent on perceiving an object, the capacity of ‘perceiving that something is perceived’ seems to be an intermediary stage between perceiving and self-awareness. In perceiving that something is perceived, estimation is aware not just of the object of perception, but also, of its subject as a perceiving self.

The capacity for perceiving that something is perceived naturally leads Avicenna to investigate the possibility of second order awareness, namely the possibility that animals are aware that they are aware of themselves. In response to the question of “why non-human animals are not aware of their self-awareness,”⁷⁷ Avicenna insists that this type of awareness is exclusive to the human intellect: “the awareness of awareness is something attributed to the intellect.”⁷⁸ In contrast to the awareness of the self (which is a kind of first-order awareness), the awareness of awareness is non-essential to the existence of the self and something that can be grasped by the intellect as an abstract concept (*ma’nā mujarrad*).⁷⁹ Animals are unable to grasp the abstract concept of “the awareness of awareness” due to their lack of intellect.⁸⁰

Another reason the animal soul is unaware that it is aware of itself is linked to the nature of the faculty of estimation. Having affirmed that the

⁷⁵ *Al-Mubāḥathāt*, §291, p. 120.

⁷⁶ *Ibid.*, §291, §292, p. 120.

⁷⁷ *Ibid.*, §517, p. 178.

⁷⁸ *Al-Ta’līqāt*, §67, p. 124.

⁷⁹ *Al-Mubāḥathāt*, §517, p. 178.

⁸⁰ *Ibid.*, and §518.

faculty of estimation is the sole faculty responsible for the awareness of the self in the animal, Avicenna draws our attention to the fact that “the estimative faculty is different from the animal soul, which is [with] primitive awareness. For estimation does not estimate itself nor prove its [own] existence; nor is it aware of it.”⁸¹

Unlike the intellect which cognizes itself, estimation does not reflect on itself as a faculty, and it is not aware of its own existence. For, as explained above, the awareness of estimation of the self is neither direct nor intrinsic, but rather it is ‘mixed-up’ with its perceptual awareness of the bodily parts of the animal, and so it cannot be aware of anything without being aware of its bodily existence and activities.

IV. ARE ANIMALS AWARE OF THE RELATIONS OF IDENTITY (*HUWIYYA*) AND OTHERNESS (*GHAYRIYYA*)?

For Avicenna the issue of animal self-awareness is linked in a striking way to the question of whether animals have knowledge of identity (*huwiyya*) or otherness (*ghayriyya*). The terms ‘identity’ and ‘otherness’, of course, have different meanings in different contexts: here Avicenna reduces these two relations into two kinds.

In commenting on Abū al-Qāsim al-Kirmānī’s claim that “animals sense ‘it is it’ (*huwa huwa*)⁸² and ‘other’ (*ghayr*) and they apprehend the latter,”⁸³

⁸¹ *Ibid.*, §657, p. 221. Black provides a different translation for this passage: “Estimation is not the primary agent of awareness (*al-shā‘ira al-ūlā*), because estimation cannot have an estimation of itself, nor establish itself, nor is it aware of itself” (see Black, “Estimation (*wahm*) in Avicenna,” p. 237). In her translation, Black (a) translated (*al-nafs al-haywāniyya*) as “primary agent” instead of literally as the “animal soul” and (b) understood the phrase “*al-shā‘ira al-ūlā*” as a reference to the estimation whereas I strongly believe that it should be a reference to the “animal soul”.

⁸² According to al-Fārābī, “if one uses the term ‘*huwa*’ one must use it as a noun and not a particle, and the term ‘*huwiyya*’ as an infinitive.” (al-Fārābī, *Kitāb al-Hurūf*, ed. Muḥsin Maḥdī [Beirut, 2004], p. 115). Following al-Fārābī, Avicenna takes the term ‘*huwa*’ to mean something that connects the subject and predicate or, as al-Fārābī shows, something replacing the Greek cupola ‘*estin*’ (see Stephen Menn, “Al-Fārābī’s *Kitāb al-Hurūf* and his analysis of the senses of being,” *Arabic Sciences and Philosophy*, vol. 18 (2008): 59–97, pp. 72–3). Avicenna writes that ‘*huwa*’ is a connector (*rābi‘a*) and it means “being” (*wujūd*). It is called a connector because it connects two meanings, as in the sentence “Zayd is (*huwa*) writer” and if you say “Zayd is writer” then [*huwa*] is implicit in this sentence” (*al-Ta‘līqāt*, §36, p. 58). Thus, in this sense Avicenna views the term ‘*huwa*’ in same way that Aristotle views the cupola, as something that signifies a combination of subject and predicate

Avicenna agrees, but says that “animals do so incidentally (*bi-al-‘ard*) and not essentially (*bi-al-dhāt*).”⁸⁴ To explain what he means by ‘it is it’, Avicenna distinguishes between two meanings:

1. “‘It is it’ is that which can be said of one, insofar as it the name (*ism*) and that which is named (*musamā*), and this cannot be part of an animal’s cognitions (*af‘āl*: literally, ‘activities’).”⁸⁵
2. “‘It is it’ in terms of the meaning of species, genus, or common accident.”⁸⁶

Two points need to be made here. First, Avicenna seems to identify the term ‘it is it’ with two forms of identity relation. Second, given that the essential relation of identity is conceptual, animals are unable to grasp it.

Just as he argues that animals are unable to grasp identity, Avicenna argues that they are unable to grasp otherness. In his view, for someone to grasp something as an “other” (*ghayr*), one must not only perceive it as something other than herself, but also “to have a thought (*khāṭir*) that is associated with this perception that causes her to believe that she is different from the other.”⁸⁷ Perception without thought is insufficient to distinguish oneself from the other. Animals, according to Avicenna, can be aware of the other only perceptually.⁸⁸ As he puts it, “the animal knows his friend (*sāhibahu*) by sensing it.”⁸⁹ To conceptually grasp the ‘otherness’ relation, an animal would need “to consider or think of something as the other,”⁹⁰ but this is something animals cannot do.

Although he denies that animals are able to grasp the essential relations of identity or otherness, Avicenna does allow that animals can grasp identity and otherness in a more limited way, by grasping what he calls a “particular identity” (*huwiyya juz’iyya*) and “particular otherness”

(Aristotle’s *De Interpretatione* 16b 19-25). With respect to the term “*huwa huwa*” Avicenna affirms that it “means the oneness/sameness and being. If one says “Zayd *huwa* writer” this means “Zayd exists as a writer,” and that Zayd and writer are one and the same.” (*al-Ta’līqāt*, §35, p. 58). Here, Avicenna treats “*huwa*” as an identity relation between the subject (Zayd) noun and the predicate noun (writer). It is this kind of relation that Avicenna has in mind in reference to the animal identity.

⁸³ *Al-Mubāḥathāt*, §246, p. 109.

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ *Ibid.*

⁸⁷ *Al-Mubāḥathāt*, §246, p. 109.

⁸⁸ Cf. Black, “Estimation (*wahm*) in Avicenna,” p. 237.

⁸⁹ *Ibid.*, §248, p. 110.

⁹⁰ *Ibid.*

(*ghayriyya juz' iyya*). In his view, “if an animal grasps ‘it is’ (*huwa*) as a particular identity’ and as ‘particular otherness’ this should not surprise us nor should we consider it something invalid.”⁹¹ This should not surprise us, because, according to Avicenna, “particular identity” and “particular otherness” are different from the rational concepts of “identity” and “otherness,” which are universal and abstract concepts.⁹²

What we can infer is that, while Avicenna denies that animals have a conceptual grasp of identity and otherness, he thinks they do have the capacity to grasp these relations as part of their perceptual experience. This manner of grasping identity and otherness is presumably the sort of grasping involved in animal self-awareness. However, given that particulars are only perceived through sensation, the question may arise as to whether animals are self-aware in virtue of sensing their bodies or not. Avicenna has not directly addressed this question, but I propose that he would respond positively to it for two reasons: first, based on the idea of mixed-up self-awareness, an animal must have a sensory experience of its body to include it in its awareness of itself. Hence, when Avicenna stated above that “if a donkey is aware of his self as something mixed up [with his body], then his self must be present to him with that mixed up [whole],”⁹³ he must assume that the donkey has sensory experience with his body in order to be aware that he is mixed up. This is in contrast with human self-awareness where Avicenna argues, especially in the case of “floating man”, that one can be aware of herself without having a sensory experience of her body. Second, as we saw above, Avicenna establishes that an animal “knows his friend (*sāhibahu*) by sensing it,” and distinguishes it from the wolf by establishing a comparison (*muqāyasa*) between what it senses in both.⁹⁴ But to know the other animal by virtue of having a sensory experience with it suggests that animals have the ability to link between sensing and knowing. Given that it knows itself as mixed-up with its body, then it must already have a sensory experience with its body that leads it to know itself.

⁹¹ *Ibid.*, §250, p. 110.

⁹² *Ibid.*

⁹³ *Ibid.*, §665, p. 223.

⁹⁴ See *ibid.*, §249, p. 110.

CONCLUSION

Avicenna holds that animals have a mixed-up self-awareness mediated by the material faculty of estimation. I have explained what it means to say that an awareness is “mixed-up,” and why that is unique to animals. I have provided a systematic account of the roles of estimation in animal cognition, and how these roles might be seen to require and provide a kind of self-awareness that is mixed-up in this way. I’ve briefly discussed how this self-awareness connects to second-order awareness, and perceiving that something is perceived, and how it connects to the grasp of identity and otherness.

It is not surprising that Avicenna insists that animals are aware of themselves, once we understand his account of animal cognitive systems. Within this system, Avicenna is not just concerned with the interplay between perceptual and cognitive faculties, but also with the nature and limits of animal consciousness. And it is not surprising that Avicenna insists that animal self-awareness is fundamentally different in kind from human self-awareness, given his view that animals lack intellect and understanding, and that the cognitive faculties of animals are essentially material. Understanding Avicenna’s model of animal self-awareness helps us to better understand Avicenna’s model of animal cognition in general, and how he thinks it relates to human cognition.