Chapter 4: The Physiology of Emotions in Avicenna

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In this chapter, I will present the aspects of physiology found in Avicenna's philosophical and medical texts that are relevant to his affective psychology. What Avicenna has to say about the physiology of emotions can be categorized under three headings: physiology of occurrent emotions, dispositions for emotions, and effects of emotions. By physiology of an occurrent emotion, I mean the matter or organ that underlies the core notion of an emotional "impulse," or "inclination," that we looked at in chapter one. We might refer this organ as the "material cause" of an emotion, though that is not language Avicenna uses in this context.[1] Avicenna actually has comparatively less to say about the physiology of occurrent emotions, and comparatively more to say about *dispositions* for emotions (which are prior to emotions), and the characteristic *effects* of emotions (which follow).

Both of these latter two aspects of physiology are best framed by prior distinctions he makes in his philosophical psychology, and can be seen as responses to two corresponding points of discussion in his philosophical tradition. First, his focus on physiology when it comes to emotional *dispositions* is in part a response to the need to explain why the same evaluative judgment sometimes causes an emotion, sometimes not, and, when it does, why the emotion varies in strength. For example, your physical state partially determines whether seeing someone with a pleasant thing you want will give rise to envy. As for Avicenna's focus on the physiology of emotional *effects*, this is due to the sort of changes he thinks, properly speaking, do and do not constitute emotions. If Avicenna had circumscribed emotions and their underlying matter differently, a lot of what he calls an emotional effect might rather be considered the material cause for the emotion itself. For example, one might think of turning red as a core component of what it means to experience shame. But Avicenna would consider this merely a possible effect of shame, and there are good reasons why Avicenna draws the lines where he does.

1. Avicenna's writings on the physiology of emotions

In addition to the philosophical texts that frame Avicenna's discussion of emotions, there are three texts relevant primarily to the physiology of emotions: section 5.8 of Avicenna's *Healing: Psychology*, the *Canon of Medicine*, and his *Cardiac Drugs*. *Psychology* 5.8 is the final section of Avicenna's main work of philosophical psychology, and it is an overview of the human physiology relevant to psychology. Much of the chapter is taken up with the question of whether there is one organ that has priority over all the other organs, that being the heart, (a la Aristotle), or whether there is more of a cooperative foundation for life's activities between the heart, brain and liver (a la Galen). Avicenna takes a middle-way between Aristotle and Galen, saying that the heart, with the vital spirit, is in some sense the source of life, but that the brain and liver have governance in different domains. So Avicenna calls the heart the "principle" organ (*al-madbaʾ*), while also allowing that other organs can be principles of more specialized activities. As we will

1 Avicenna is certainly aware of the Aristotelian four-cause explanatory schema, but he does not use this terminology in his explanations of psychological acts to the extent that some later philosophers in the Latin tradition would.

see, 5.8 is primarily valuable for the discussion of emotions insofar as it clarifies the matter underlying occurrent emotions.

The *Canon* is, of course, Avicenna's systematic, influential work on the nature of medicine, along with the causes of diseases and their treatments. It is written in five sections, of which the first and third are most relevant to the discussion of emotions.[2] The first is relevant for its discussion of the vital spirit, which is referred to frequently when discussing the dispositions and effects for emotions, while the third is relevant because it contains Avicenna's discussion of some mental illnesses, the most detailed of such discussions concerning melancholy.

As Avicenna explains at the outset of the *Canon*, medicine has both a theoretical and a practical component. This is not a distinction between, say, thinking about medicine versus going out and actively performing it. Rather, the distinction is between different types of principles: those that need to be known in order to understand the the treatment of disease and maintenance of health, and then the concrete principles for doing so.[3] For example, you need to understand what a liver is, in general, before you are able to understand the specific instructions for diagnosing and treating its ailments. The theoretical component of medicine thus contains discussion on roughly the same level of generality as what we found in the *Psychology*, albeit restricted to the general theory needed for the art of medicine. This means that some of Avicenna's discussions of emotions in the *Canon* give us insight into the general nature of emotions, not just their treatment.

The *Cardiac Drugs* is a much shorter treatise than the *Canon*, focused on the workings of the heart, along with its particular ailments and treatments.[4] *Cardiac Drugs* is thought to initially have been a stand-alone treatise, but has been inserted both into the *Canon* and the *Healing: Psychology* at different points. More recently, *Cardiac Drugs* has been inserted into English translations of the *Canon*, as a way of supplementing the Canon's discussion of the vital spirit.[5] However, there was a premodern tradition, apparently begun by Avicenna's disciple Jūzjāni, of including *Cardiac Drugs* after section 4.4 of *Healing: Psychology*. As described by Tommaso Alpina, some Arabic and Latin manuscripts reflect this tradition, though modern critical editions of the Arabic *Healing: Psychology* do not. Simone Van Riet's modern Latin edition of the *Healing: Psychology* does include *Cardiac Drugs*, albeit as an appendix to the work as a whole. In any case, the impetus for attaching *Cardiac Drugs* to *Psychology* 4.4 is Avicenna's own remark, at the end of 4.4:

> And we have discussed in our books of medicine, to a degree of detail and accuracy not found in any predecessors, the reason for the dispositions [*istiʿdādāt*] of different people—on account of their natural temperament [*jibla*] and their different states [*aḥwāl*]—to joy, depression, anger, gentleness, rancor, calmness, and suchlike. So let someone read [*about such things*] there.[6]

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2 There is so far only a critical edition of the first book of Avicenna's *Canon*, published by Vikas in 1982. For the rest, the standard version to use is that edited by Al-Qashsh in 1987, which is a more readable version, with commentary and index, of the 1877 Būlāq (non-critical) text.

3 Avicenna, *Canon* (1982), I.1.1, 33-34.

4 There is no critical edition of *Cardiac Drugs*, though the Arabic version used here (ed. al-Bābā) is based on three different manuscripts. See Alpina (2017) 371.

5 For example, this choice is described in Bakhtiar's introduction to Avicenna, Canon (1999), lxvi. Texts from Cardiac Drugs are also inserted into the edition of Gruner (1973). See final note on page 122, introducing the insertion of *Cardiac Drugs* which follows.

6 Avicenna, *Healing: Psychology* (1959), 4.4. 201.

As has been shown in previous chapters, 4.4 is where Avicenna gives his most fundamental, general account of the nature of emotion, as part of a discussion of the motive soul. As this text makes clear, though, there is more to be said about emotions, which can be found in Avicenna's medical texts. Avicenna's *Canon* does contain some discussion of emotions, but it makes sense to take the above text as pointing us towards *Cardiac Drugs* in particular. As a percentage of the text, *Cardiac Drugs* is much more focused on emotions, and in particular on the sort of dispositions for emotions to which Avicenna's concluding remark refers.

2. The physiology underlying occurrent emotions

Avicenna's brief remarks about what underlies occurrent emotions can serve as a foundation to his discussions of the physiology of emotional dispositions and effects. When we experience an emotion, triggered by some cognitive evaluation, what we experience most fundamentally is an *inclination/impulse* (that is how Avicenna likes to describe the initial act of the motive faculty, prior to the resolution to act). Physiologically, what underlies that inclination/impulse is the heart, and the vital spirit that is in the heart. This can be seen by putting together several texts. First, there is Avicenna's remark about the organ of the irascible faculty in 5.8 of his *Healing: Psychology*:

> As for the faculty of anger and what is related to it, it does not need an organ other than the principle [*al-mabdaʾ*], because its act is one and it is suited to the strong, hot temperament [therein], and it needs this.[7]

As mentioned above, Avicenna affirms in 5.8 that the heart is the principle organ, with the brain and liver being principles in a subsidiary sense, in more specific domains. So when Avicenna says in the above text that the organ of the irascible faculty is the "principle," without any kind of qualification, we should take him to be referring to the heart. The heart in the Aristotelian tradition is considered the source of the body's vital heat, so identifying the "principle" with the heart is supported by Avicenna's ensuing explanation that this organ is suited to the irascible faculty because of its "strong, hot temperament." What Avicenna says about the underlying organ for the acts of the irascible faculty applies to other types of emotions, as well, as seen by the qualifier that what he says is meant for the faculty of anger and "what is related to it." Nowhere else in 5.8 does Avicenna discuss an organ for concupiscible acts, or any other types of emotions, so it is best to take this as a way of saying that the matter which underlies *any* emotion is the heart.

In the next two texts, we see that in addition to the heart, the vital spirit that is in the heart underlies an occurrent emotion:

> For anger and fear and what is similar to them are passions[s] [*infiʿāl*] of this [vital] faculty, even though their principle [*mabdaʾuhā*] is sensation and estimation and the apprehensive faculties related to these faculties.[8]

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7 Avicenna, *Healing: Psychology* (1959), 5.8, 268.
8 Avicenna, *Canon* (1982), I.6.4, 128.

> It seems that the sages and their followers among the doctors have agreed that joy [*al-faraḥ*] and depression [*al-ghamm*] and fear [*al-khawf*] and anger [*al-ghaḍb*], [that] they are are among the affections [*al-infʿālāt*] particularly associated with [*al-khāṣa bi*] the vital spirit [*al-rūḥ*] that is in the heart.[9]

As seen in chapter one, the proximate cause of an emotion is an evaluative cognition. But the emotion itself is realized in the vital spirit that is in the heart, which is distinct from the brain and the vital spirit in the brain (where the cognitive faculties are localized). The first text makes it fairly clear that Avicenna wants to localize occurrent emotions in the vital spirit, and the second text clarifies that this is the vital spirit "in the heart" in particular. This is an important clarification because, as we will see in the next section, the vital spirit taken generally underlies *all* psychological faculties, so it wouldn't mean much to just say that the emotions are passions of the vital spirit, taken generally.

So the idea is that when an emotion is triggered, the impulse or inclination is realized in a unique activity in the heart, and the vital spirit in the heart. This is a fairly circumscribed view of what the matter or organ of an occurrent emotion is, but it fits with what we will see Avicenna say about the broader effects of emotions, which extend well beyond those confines.

3. The nature of the vital spirit

Avicenna frequently links emotions to the vital spirit, [*rūh*], also called the vital faculty [*al-quwwa al-ḥaywāniyya*]. For example, the following text begins Avicenna's discussion of the vital spirit in the *Canon:*

> As for the vital faculty [*al-quwwa al-ḥaywaniyya*]—and they mean by this, the power whereby if it occurs in the organs, it prepares them for receiving the power of sensation and movement and the acts of life—they [prior scientists] link [*yuḍīfūn*] to this the movements of fear [*al-khawf*] and anger [*al-ghaḍb*] on account of what they find in them in terms of expansion and contraction of the vital spirit [*al-rūḥ*] related to this faculty.[10]

The vital spirit is initially posited to account for how a body comes to receive psychological faculties, that is, how it becomes living. In addition to this, it is also frequently appealed to as part of emotional experience, both as that which underlies occurrent emotions (which we have seen), and as a key component of emotional dispositions and effects (which we will look at shortly). These discussions of dispositions and effects will make more sense if we already have in hand an understanding of the vital spirit on its own terms.

The first step towards understanding all this terminology is to see it in the context of Avicenna's division of faculties in his medical texts, which differs from that of his psychological texts. In the *Canon*, Avicenna groups the faculties of living organisms into three broad categories, and discusses them in the following order: the natural [*al-ṭabīʿiyya*], the vital [*al-ḥayawāniyya*],[11] and the psychological [*al-nafsāniyya*]. The "natural faculties" of the *Canon* correspond to the "vegetative faculties" in the *Psychology*, which include faculties for nutrition,

9 Avicenna, *Cardiac Drugs* (1984), 226.
10 Avicenna, *Canon* (1982), I.6.4, 126.
11 'Animal" would also be an appropriate way of translating this term, but "vital" is common in the literature on the topic. "Vital," is also more helpful than "animal," since the vital faculty has more to do with making something living [ḥayy] than making it an animal.

growth and generation. The *Canon's* "psychological faculties" explicitly correspond to the sensitive and motive faculties described in book IV of the *Psychology*, with particular emphasis in the *Canon* on the sensitive faculties.

Most fundamentally, the vital spirit is a lightweight, fine physical substance produced by the heart.[12] It flows to not-yet-animate organs, giving them life, and enabling them to receive the further vegetative, sensitive or motive faculties that we typically associate with them. Avicenna relates the development of the vital spirit in an almost poetic section of *Cardiac Drugs*, describing how all of life derives from God. Vital spirit, Avicenna says, is "a physical substance, coming from the mixture of the elements, approaching a likeness to the heavenly bodies."[13] The vital spirit is often described in physical terms, but it also has a functional description, which leads to Avicenna shifting between referring to it as a "spirit" or "faculty" unceremoniously, suggesting that neither label is meant to refer exclusively to its material aspect. Rather, either "vital spirit" or "vital faculty" refers to this fine substance, which can also be described in terms of its form, or function.

The vital spirit is initially posited to account for the beginning stages of the development of living organisms. In broad strokes, this process unfolds via elements being combined together, composing humours, which ultimately compose organs and substances, ranging from the crude and coarse, to the fine and harmonious. In *Cardiac Drugs* and the *Canon*, Avicenna explains how this process of organ and substance development works in the case of humans: the heart emerges prior to all other organs (except possibly the liver) as a "storehouse" for vital spirit (*khizānat al-rūḥ*), and proceeding from there the vital spirit gives life to the other organs.[14] Other organs, to which the vital spirit gives life, originate from the liver. Whereas the heart produces the fine spirit that gives life, the liver produces something much more coarse, which is suitable for shaping the matter of the other organs.[15] In other words, the liver produces the matter of the organs, and the heart produces the vital spirit which enlivens them. It is not apparent from these texts how the liver and the heart themselves first arise, or which one comes first, but presumably the important thing for the physician to know is the role the liver and the heart play once they in fact exist.

In the medical discussions of human life, "life" refers to the existence of the vital spirit in various organs.[16] Once these organs have the vital spirit, they by that fact have a vital faculty,

12 In positing something like this, Avicenna is depending chiefly on Galen, though the theory of vital spirit (Greek: *pneuma*) goes at least back to Aristotle. For a discussion of pneuma in Aristotle, see Generation of Animals (1943), Appendix B. For a discussion of pneuma in Galen, see On the Natural Faculties (1916), introduction, xxxiv-xxxv.
13 Avicenna, *Cardiac Drugs* (1984), 226.
14 Avicenna, *Cardiac Drugs* (1984), 221.
15 Avicenna, *Canon* (1982), I.6.4, 126.
16 Excursus on the notion of "life" in Avicenna: Most would, of course, say that plants are also alive, yet they do not have the vital spirit. Avicenna discusses the status of plants with respect to "life [*al-ḥayā*]" towards the beginning of his *Healing: Book of Plants*. He argues that this is primarily a verbal dispute:

"One strays from truth if they argue that plants have sensation for the sake of [i.e., because they also have] thought and understanding, like Anaxagoras and Empedocles and Democritus. Now if activity in the realm of nutrition were called life—so that a body, if it persists through nutrition, is [called] living, and then, if it is unable to maintain its individuality through nutrition, outside corruption has power over it so that its mixture changes, and its power dissipates, then it [is said to] die—then [if that is what we mean by life] it is appropriate to call a plant living. And if [calling a plant living] is on the condition that [life means] perception and non-voluntary movement, then it is not permitted to call plants living in any respect. And this dispute is mostly verbal (*lafṭī*). (Avicenna, *Healing: Book of*

which is essentially the ability to receive the vegetative or sensitive faculty we more typically associate with those organs.[17] In other words, taking the lungs as an example, there are three states we can distinguish: 1) the to-be-enlivened matter of the lungs, from the liver 2) the lungs, enlivened by the vital spirit, and technically "alive" in Avicenna's medical terminology, and 3) the lungs, with the power for respiration, able to do the breathing we typically associate with them.

It might seem strange to think of the lungs as "living" when they are not yet breathing or even *able* to breath, but Avicenna argues that this distinction is necessary to account for the fact that sometimes an organ is not "dead," yet it seems to have lost its ability to perform the act which we uniquely associate with it. For example, as described in the *Canon*, an organ of sensation might have some obstruction, or be paralyzed, and so be unable to sense, lacking the power of sensation, but it would not thereby *also* be dead. On the contrary, precisely in virtue of having vital spirit, it is still alive—just lacking its particular power.[18] So in the *Canon* and *Cardiac Drugs*, the primary function of the vital spirit is to provide life, and thereby the ability (the vital *potentiality*) to acquire further abilities.

Plants, 3.)"

Because plants are capable of nutrition, growth and reproduction, some call them alive. If that is all we mean by "living," Avicenna has no problem calling plants alive. But some, conflating the idea of life with thought, understanding, and sensation, assume that plants must have the later faculties in some measure as well, since or if they are to be considered alive. This is a mistake, Avicenna thinks, because we know those later faculties are only given to living beings capable of voluntary motion and, as mentioned in the paragraph just prior to the above quote, plants cannot act on the basis of information concerning harms and benefits. So it is appropriate to call plants living, provided we understand that there is life capable of voluntary motion (animals and humans), and life which is not (plants).

This exposition runs contrary to a recent article, titled "Avicenna's Denial of Life of Plants." In this article, Tawara argues that while Avicenna early on, in the *Compendium*, attributed life to plants (because they have souls), he later revised his view in the *Book of Plants*. The key text for Tawara's claim is the one just presented, where Avicenna says towards the end that "it is not permitted to call plants living in any respect (see Tawara (2014) 129)." But as we have seen, this statement is part of Avicenna's permissive stance that we can either call plants alive or not alive, *depending on what we mean by life*. So Avicenna does not decisively deny life to plants in this text.

Tawara claims to find further support for his view in Avicenna's *Canon of Medicine*. There, according to Tawara, Avicenna says life is not present in plants, because plants lack the vital faculty. The vital faculty is "the faculty that makes the organs prepare for accepting the faculty of sensation and movement, and the functions of life (ibid., 135)." Based on this, it may seem Avicenna is denying life to plants in the *Canon*: life is associated with sensation and movement, and other functions of life, and if anything is certain, plants do not have these sorts of abilities.

But context suggests that Avicenna is, again, not going so far as to deny plants life. In the *Canon*, Avicenna is dealing primarily with humans from a medical point of view. The vital spirit is indeed a condition for a certain kind of life, namely, animal and human life. But just because plants lack the same conditions for life as humans, does not mean that we have to say that plants lack life.

Again, in *Healing: Psychology* Avicenna insists that plants have a soul, and says that he is perfectly happy with calling something alive, if by alive we mean "has a soul (1.1, p. 15)." So viewed, Avicenna's later statements concerning of life of plants are ambivalent and less dramatic.

17 Avicenna, *Canon* (1982), I.6.4, 126-127.

18 Avicenna, *Canon* (1982), I.6.4, 126-127.

While the *Canon* and *Cardiac Drugs* are substantially in agreement about the nature of the vital spirit, there are some surface differences worth clarifying. In brief, these texts use somewhat different language when discussing 1) whether there is one "spirit," or three, and 2) whether the further vegetative, sensitive and appetitive powers exist in the vital spirit *before* mingling with the unique temperament of the to-be-enlivened organ, or after the vital spirit encounters the matter of the organ. To illustrate the first point, in *Cardiac Drugs*, Avicenna says that there are three things properly called spirits [*arwāh*]—vital, natural/vegetative, and psychological—with the vital spirit being the foundation for the others.[19] On the other hand, in the *Canon*, he firmly asserts that there is only one thing that should properly be called spirit, and that is the vital spirit,[20] with the vegetative and psychological simply being labeled faculties. As for the second point—whether the vital spirit bears the further faculties prior to mingling with the temperaments, or whether these come to be after the organs are enlivened—in *Cardiac Drugs* he mentions both views, without taking a side[21]. In the *Canon* he is again more decisive, saying that the further faculties do *not* appear until vital spirit mingles with the organs.[22]

The difference between the two texts is only on the surface, and can be explained for reasons historical and philosophical. Though Avicenna lists three "spirits" in *Cardiac Drugs*, only one of the them is the vital spirit, and only it has the function that has been described above. Further, even though Avicenna is not firmly settled on the temporal priority of the vital spirit in the *Cardiac Drugs*, he lists it as a legitimate option, and says nothing against it.

As for why there is the divergence, as a point of history, Avicenna's disciple Juzjānī records that *Cardiac Drugs* was finished in 1015 and given to a patron,[23] with Avicenna never going back to modify it. The *Canon*, on the other hand, continued to be modified until 1024, being finished during Avicenna's last stay in Isfahan.[24] So the time lapse provides space for development.

Philosophically, there are two possibilities for why such a development might occur. On the one hand, since the vital spirit is that which enlivens and makes possible all the remaining faculties, it plays a role in medicine akin to the soul. As Avicenna argues in the *Canon*, if we were to talk about three spirits—even if they are not all vital spirit—we would verge precariously close to affirming the view that there are three souls, as some prior physicians have done.[25] So Avicenna's considered view on the vital spirit's fundamental nature seems to be found in the *Canon*: there is only one "spirit," not three, whose function is to give the organs (produced by the liver) potentiality for receiving further faculties, as opposed to these faculties already existing in the separate vital spirit. On the other hand, Alpina speculates that the *Cardiac Drug*s' more complex schema of the vital spirit's function may simply be due to its more philosophical orientation.[26] That is, in general, Avicenna tends to avoid philosophical nuances in the *Canon*, whereas the *Cardiac Drugs,* as discussed above,[27] appears to have been conceived by Avicenna as more of an extension of his philosophical project in *Healing: Psychology*.

19 Avicenna, *Cardiac Drugs* (1984), 222-223.
20 Avicenna, *Canon* (1982), I.6.4, 127.
21 Avicenna, *Cardiac Drugs* (1984), 224.
22 Avicenna, *Canon* (1982), I.6.4, 127.
23 Gutas (2014), 514.
24 Gutas (2014), 512.
25 Avicenna, *Canon* (1982), I.6.4, 127.
26 Alpina (2017) 376-377.
27 See section 1, above.

The vital spirit is not only active at the beginning of life, but continues to play a role as life persists. That is, The vital spirit remains in the body, passing through the brain as it circulates, where the brain alters it as needed it, and then redistributes it in such a way as facilitates the other functions of and communication between different organs (vegetative, sensitive and motive).[28] That is, the material cause for every faculty includes vital spirit of a particular variety, and it is the brain that tailors the vital spirit to serve those functions. Moreover, the specific varieties of vital spirit distributed throughout the body can fluctuate in minute ways, and these changes affect how exactly a particular act of that faculty occurs. For example, Avicenna explains some vagaries of vision via the disposition of the vital spirit in the eye.[29] So the vital spirit remains coursing through and between all the organs, similar enough in all of them to provide some unity and communication, but distinct enough in each locale to play a role in particular functions. In brief, the vital spirit enlivens organs, and then undergirds those organs' functions and cooperation.

Avicenna describes the activities of the vital spirit as located conceptually in some middle-ground between vegetative faculties and the animal faculties. The vital faculty is like the vegetative, in that its acts are not volitional. As we saw in Avicenna's distinction in *Healing: Metaphysics* 4.2 between volitional and non-volitional faculties, this means that it is not a power over opposites, and not part of the belief-appetite system of faculties.[30] Yet the vital spirit is also like the animal, sensitive faculties, in that it exhibits contrary movements. Whereas the vegetative faculties just act according to one pattern (e.g., nutrition heats food), the vital spirit can expand and contract, can heat and cool. So its variated movement makes it similar to animal, sensitive faculties, but not quite the same since it lacks will.

With an understanding of the vital spirit in hand, we will now turn to Avicenna's discussions of the physiology of emotional dispositions and effects, which incorporates the concept of vital spirit throughout. In addressing each, we will begin with the philosophical framework into which the physiological texts fit, and then discuss the physiology itself.

4. Physiology of emotional dispositions

4.1 Observations in need of an explanation

In *Healing: Psychology* 4.4 Avicenna lays out some observations that give rise to several related questions: why do acts of the motive faculty occur at some times, and not others, and with greater or lesser degrees of intensity? For example, why might one person get sad as a result of hearing some piece of news, and another person not? Coming at the start of 4.4, as Avicenna transitions away from his discussion of the sensitive powers of the animal soul, the most direct impetus for these observations is to show that the motive faculty is distinct from apprehensive faculties:

> For people agree in apprehending what they sense and imagine insofar as they sense or imagine, but they differ in what they have appetites for from among those things they sense or imagine. For one person's own state [ḥāluhu] might differ in regard to this. For he imagines food and has an appetite for it at the time of

28 On the role of the brain in redistributing vital spirit, see: Avicenna, *Healing: Psychology* (1959), 5.8, 263 ff.
29 Avicenna, *Healing: Psychology* (1959), 3.8, 155.
30 See chapter 3, section 2. $

> hunger, and does not have an appetite for it at the time of satiety, and also the person with good morals [al-ḥasn al-akhlāq], if he imagines despicable pleasures, he does not have an appetite for them, while another person does. And these two states don't only belong to humans, rather, they also belong to animals.[31]

Avicenna's point is obvious once stated: it is possible to have an evaluative judgment, but no emotion. Since the same evaluative apprehension sometimes does and sometimes does not lead to acts of the motive faculty, the two are thereby distinct, not essentially connected. This shows us both that acts of the motive faculty are distinct from apprehensions, and gives us some information about how emotions function.

It is important to specify we are talking about *evaluative* apprehensive acts, because if that were not the case, Avicenna's point would be trivial. No one expects a non-evaluative judgment, like solving a math problem, to result in an emotion. But when we judge something to be good, pleasant or useful, there is some expectation that these judgments have relevance to feeling and behavior. We thus need an explanation for why sometimes the motive faculty is triggered by those judgments, and at other times it does not.

Avicenna indicates in the above text that the explanation for why this is someone's "state" upon having some judgment. As his examples show, one's state can include cognitive as well as physiological dispositions. Someone who is satiated from food will not respond to a judgment of something as delicious or nutritious in the same way as a hungry person, nor will a person of good morals respond to something judged as pleasant, but immoral, in the same way as a vicious person. So physiology is an important part of the explanation for why judgments sometimes result in emotions, and other times not. As we will see, however, in his medical texts he even appeals to physiology as a way of explaining what grounds virtues and vices, though these latter types of dispositions would not be *reducible* to physical states.

Our responsiveness to evaluative judgments not only varies along the lines of *whether* we will have certain emotions, or not—there is also a difference in *intensity*. Immediately following the above text, Avicenna observes that:

> Appetite may vary. For among [different kinds of appetite] there is that which remains weak, and there is that which strengthens to the point where it causes the resolution [to act]—though the resolution is not the same as appetite.[32]

Avicenna is making two points here: first, that appetite grows strong and diminishes, and that sometimes it grows strong enough to the point where the resolution to act occurs. As we have seen in chapter three, part of what accounts for the transition to the resolution to act is the move from mere evaluative judgment to practical judgment. But even prior to the resolution to act, the motive faculty can incline with varying strengths. You see something, judge it as delicious, and the inclination grows from mild to all-consuming, without any change in the evaluative judgment. So there needs to be some other explanation for why one and the same value judgment can see to different degrees of intensity for emotions.

Avicenna does not provide a complete answer in *Psychology* 4.4 for these issues, but two points within the chapter suggest that he is particularly interested int he role of physiological dispositions. Firstly, about halfway through 4.4, as a conclusion to his overview of the motive

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31 Avicenna, *Healing: Psychology* (1959), 4.4, 194.
32 Avicenna, *Healing: Psychology* (1959), 4.4, 195.

faculty, Avicenna states that emotions "do not occur without the participation of the body" because,

> …the bodily temperaments [*amzija*] changes with [these emotions], and also, these [emotions] come about with the occurrence of [various] bodily temperaments. For from some temperaments a disposition towards anger follows, and from some temperaments, a disposition towards concupiscible desire. And cowardice and fear follow upon certain temperaments. Some people have angry dispositions, such that they are quick to anger, and some are fearful, that is, cowards, quick to fear.

As becomes evident in what follows, Avicenna is claiming that an emotional episode *causes* changes in the body's temperaments—that is, the state of the elemental properties and humours in the body—and also that an emotional episode is, at least in part, *caused* by changes in the body's temperaments.

Moreover, at the end of the chapter he points us in the direction of his more full response, in a text we looked at earlier. Concluding 4.4, he says:

> And we have discussed in our books of medicine, to a degree of detail and accuracy not found in any predecessors, the reason for the dispositions [*istiʿdādāt*] of different people—on account of their natural temperament [*jibla*] and their different states [*aḥwāl*]—to joy, depression, anger, gentleness, rancor, calmness, and suchlike. So let someone read [about such things] there.[33]

The terms he uses here, *jibla* and *ḥāl*, do not on their own clarify that we are talking about physiological dispositions, but *jibla* is certainly suggestive of that, being used often in that context. In any case, taken alongside the reference to his medical texts, we can infer that he wants to explain dispositions (*istiʿdādāt*) by way of physiological states—and that is in fact what Avicenna does in his medical texts, *Cardiac Drugs* in particular. Thus, Avicenna begins 4.4 with his observations about how people are disposed in different ways towards emotions, and he concludes 4.4 by pointing us in the direction of what he thinks to be a key (though not total) part of the explanation, which is an appeal to the state of the body and its temperaments.

4.2 Physiological dispositions as a response to issues in the tradition

In tying both these sorts of dispositions (whether an emotion occurs, and its intensity) to the body and its temperaments, Avicenna is dealing at once with several concerns from his predecessors. First, there is a set of issues Aristotle raises in *De Anima* 1.1, 403a19-24. Here Aristotle is primarily concerned to argue for the notion that psychological states depend on the soul and body together. He cites emotions as prime examples of this, because we so readily associate certain physical acts with certain emotions (e.g., shame is partially constituted by the face going white). But Aristotle says that even more solid evidence of the hylomorphic nature of emotions is the fact that peoples' temperamental dispositions affect whether and how they have certain emotions. For example, some people are physically constituted so that they will become fearful at the least provocation, while others are so disposed that they will not evince any sign of fear, even when something fearsome is right in front of them.

Avicenna's discussion of physiological dispositions for emotions is clearly reminiscent of this passage in Aristotle, but the two have different aims in bringing up these observations.

33 Avicenna, *Healing: Psychology* (1959), 4.4, 201.

Aristotle is providing preliminary evidence that most acts of the soul must be embodied, contrary to what is true of states of the rational soul—am notion with which Avicenna concurs and deals with elsewhere. So when Avicenna brings up similar observations about the ways that the motive faculty depends on temperamental dispositions, it is to illustrate something about *how* the motive faculty operates, not about what *sort* of state motive states are (e.g., hylomorphic or not). Nonetheless, this *De Anima* text is clearly foundational to the Aristotelian tradition's tendency to discuss physiological dispositions for emotions. Themistius and John Philoponus similarly discuss physiological dispositions for emotions at this juncture, extending the points Aristotle makes, but they ultimately subordinate it to the point that these states are hylomorphic.[34] Avicenna's contribution lies not in the fact that he notes the dependence of emotions on temperaments, but on extracting this point from the discussion of the nature of hylomorphic states in general, to be a part of hiss philosophical analysis of emotion in its own right.

The second bit of the tradition that Avicenna's analysis bears on is a debate in the Stoic tradition, available to Avicenna in the Arabic version of Galen's *Harmony of Plato and Hippocrates*.[35] In *Harmony*, Galen reports that two early figures in the history of Stoic theorizing about emotions, Zeno and Chrysippus, associated emotions with judgments, but in different ways.[36] For Zeno, the emotion itself is a kind of non-cognitive movement of the soul that in some way accompanies or supervenes on a judgment. Chrysippus thought emotions themselves are, in fact, types of judgments—linguistic, but not-rational. Since emotions are linguistic, according to Chrysippus, animals and infants are not able to experience them. As Galen recounts, into this debate later comes Posidonius, who objects to both of Zeno and Chrysippus, criticizing the notion that emotions are tied in any essential way to judgments. Posidonius's first concern, more directed at Chryssipus, is that it seems obvious animals and infants *do* experience what we call emotions, especially fear and anger. Secondly, and more relevant to our conversation here, is that it is possible to have one and the same judgment, but to fail to have the associated emotion. If emotions were types of judgments (of whatever kind), or necessarily supervened on judgments, they would track our affirming or denying particular propositions. But he notes that in the case of grief, the relevant judgment (e.g., that someone you love has died) does not change, while nonetheless grief may lessen over time.[37]

Though he does not mention this debate explicitly, Avicenna would have been well aware of it, and his presentation strikes a middle ground. Judgments are necessary causes of emotions, but they are not sufficient, either for the occurrence of an emotion, or for determining the strength of a particular occurrence. This is particularly relevant to Posidonius's formulation, since Avicenna's view provides a multi-faceted explanation for why emotional occurrences and strengths can vary in the face of one and the same judgment. Even if we still value someone and

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34 See John Philoponus (2005), 67-72 and Themistius (1996), 21, 6.34.

35 Avicenna never cites this text, but it is a prominent enough debate within the ancient tradition that it is reasonable to think he would be aware of it as a central concern with which to be dealt.

36 The debate is recounted in *De placitis Hippocratis et Platonis* books 4-7. The following key text (5.1.4–6) is cited at Knuuttila (2004), 53: "In the first book of his On Emotions Chrysippus tries to prove that emotions are certain judgements of reason while Zeno did not regard them as the judgements themselves but contractions, expansions, elations and dejections of the soul which supervene on judgements. Posidonius, disagreeing with both, praises and accepts Plato's view. He disputes the view of the followers of Chrysippus arguing that emotions are neither judgements nor supervenient upon them, but certain movements of other irrational powers, which Plato called appetitive and spirited." The exchange is also discussed at King (2012) 1-11.

37 Nussbaum (2001) discusses grief on page 79.

cognitively acknowledge their loss as tragic, one's physiological disposition and background beliefs will partially affect just how strongly grief follows from that judgment, if at all.

In sum, through his analysis of dispositions for emotions, Avicenna moves the *De Anima* conversation forward by honing in on physiological dispositions as a matter of analysis in its own right, and he moves the concerns expressed in the Stoic tradition forward by offering an account of how emotions relate to judgments.

4.3 Dispositions for emotions in Avicenna's medical texts

Avicenna fills in the picture of how the body's states amount to dispositions for emotions in his medical texts. In the *Cardiac Drugs*, after Avicenna's overview of the the vital spirit's origin and dual purposes (described above in section 3), he immediately makes the following remark:

> It seems that the sages and their followers among the doctors have agreed that joy [*al-faraḥ*] and depression [*al-ghamm*] and fear [*al-khawf*] and anger [*al-ghaḍb*] are among the affections [*al-infʿālāt*] particularly associated with [*al-khāṣa bi*] the vital spirit [*al-rūḥ*] that is the in heart. Moreover [*thumma inna*], every affection which grows strong or weak, [it does so] not because of the active cause [*fāʿil*], but rather it accords in its intensification or weakening with the intensification or weakening of the passive substance [*al-jawhar al-munfaʿil*].[38]

The first part of this text is making the general point, discussed above in section 2, that occurrent emotions supervene on the vital spirit in the heart (and the heart itself). The second part of the text is making the point that intensity or weakness of a particular emotion is due in a significant way to some sort of bodily state. He does not clarify what bodily factors he is referring to here (he just references the "passive substance") but it becomes clear in the sections that follow that he is particularly concerned with the state of the vital spirit. That is, he proceeds from here to talk about how what sort of emotions arise from people with vital spirits of characteristic varieties. For example, people with a less harmonious, murky vital spirit (like the sick, the tired, or the elderly) tend towards more marked sadness, while those whose vital spirit remains harmonious and light tend towards joy.[39] Of course, as we saw in the section on the nature of the vital spirit, the vital spirit undergirds the functioning of all psychological activities, so emotions are not unique in being affecting by the state of the vital spirit. We will return to that point below.

Emotional dispositions in the vital spirit are distinguished from the "active cause [*fāʿil*]" of some emotion in the above text. Avicenna does not return to this precise language of to unpack what he means, but it would make the most sense to take "active case" as referring to evaluative judgments, which are discussed as the proximate cause of emotions in his more philosophical texts. Understood in that sense, a discussion a few pages in the same section amounts to an elaboration on this point, where he briefly enumerates various "strong [*quwiyya*]" and "obvious [*ẓahira*]" causes of of joy and sadness, as distinct from those that are disposing, and less obvious. The strong and obvious causes of joy include things like good conversation, being surprised by something pleasant, acting freely according to ones wishes, and so on.[40] Described as such, these

38 Avicenna, *Cardiac Drugs* (1984), 226.
39 Avicenna, *Cardiac Drugs* (1984), 226.
40 Avicenna, *Cardiac Drugs* (1984), 232.

"strong and obvious" causes might seem more like *occasions* for making an evaluative judgment that triggers an emotion, rather than being the judgment itself. But in listing examples of proximate causes of emotions, Avicenna frequently switches between the two ways of talking. This happens frequently in his *Healing: Rhetoric* (*Kitāb al-Khaṭāba*) where Avicenna (like Aristotle) discusses various objects of emotions, such as how an insult can lead to anger.[41] The implication, of course, is that the insult is cognized as something offensive. In this portion of the *Cardiac Drugs* Avicenna even mentions his "*Book of Rhetoric* [*Kitāb Rīṭūrīqa*]" as a place where more such "strong and obvious causes" are discussed. So it seems fair to assume that in both cases these objects are proximate causes of emotions, insofar as they are evaluated in the relevant way. Thus, the above text is saying that if we want an explanation for why an emotion grows strong or weak, we should look to one's physiological state, not the evaluation that can trigger the emotion.

Later in the *Cardiac Drugs*, Avicenna also describes how the vital spirit similarly constitutes dispositions for whether emotions *happen or not*, plain and simple. Avicenna makes this point in the following two texts, which bookend a discussion of the effects of wine, and the "clear and obvious" causes of joy we just looked at:

> [For] the one who is prepared for something, the weakest of its causes suffices for it, like sulphur for conflagration, for it is set aflame with the slightest spark, while wood is not set aflame with twice as much. So when the soul possesses a vital spirit prepared for passions from joy-causing things, it rejoices at the slightest cause[42].

> [R]egarding preparation: the one who leans towards one side is *un*influenced by causes from the other side, unless they are strong, and they *are* influenced by the causes [of the side he leans towards], even though they are weak[43].

In the first text, Avicenna's point is that when someone is disposed in one emotional direction, very little is needed to trigger that emotion. In fact, he says, when people drink wine, it seems that they sometimes experience emotions for no reason whatsoever. But of course this is not possible, since every effect needs to have an active cause. Wine simply makes the vital spirit more abundant and active, which makes it more likely for some judgment to result in an emotion. In the second text, Avicenna asserts that one's vital spirit can be so far in one direction that some active causes rarely if ever leads to the emotion it normally would in most people. For example, while it is possible to be disposed towards grumpiness such that a positive evaluation will only make you a little pleased, it is also possible to be so strongly disposed towards grumpiness that a positive evaluation won't trigger any emotion whatsoever. So we see that tge state of the vital spirit affects whether some judgment will result in an emotion and, if so, the strength of the emotion.

These two points—whether an emotion occurs and its strength—are obviously related along a kind of spectrum. If your vital spirit is only disposed partially towards grumpiness you will experience weak positive emotions, but if your vital spirit goes too far in that direction, you will experience no relevant emotion. Presumably Avicenna emphasizes them as distinct points, because they account for phenomena that we typically classify as different. Just because the

41 Avicenna, *Healing: Rhetoric* (1954), 131.
42 Avicenna, *Cardiac Drugs* (1984), 230.
43 Avicenna, *Cardiac Drugs* (1984), 233, emphasis mine.

answer to two questions (i.e., "Why did that emotion occur?" "Why did it occur in that strength?") make reference to the same sort of solution, does not make them the same question.

Returning to a point made earlier, it is important to note that the link Avicenna is drawing between emotions and vital spirits in terms of dispositions should not be taken to imply that other psychological phenomena do not have similar relations to the vital spirit. As we saw in a prior section, the vital spirit underlies all psychological activities. Insofar as the vital spirit facilitates the functioning and communication of various faculties, those faculties will all have dispositions and effects in the vital spirit, to some degree or other.[44] For example, Avicenna explains some vagaries of eyesight by an appeal to the vital spirit.[45] Elsewhere Avicenna says that what parents imagine during intercourse can have an effect on the color [*lawn*] of child conceived, for example, thinking about red can add a tinge of red.[46] He admits that this latter point may sound far-fetched, but he says it follows from his fundamental principles that cognitions work by way of the vital spirit. Whether we agree with that reasoning or not, these are all illustrations of the basic idea that it is not just emotions which are affected by the state of the vital spirit.

Further, in the *Canon*, Avicenna makes reference to the vital spirit in explaining treatment for other sorts of mental disorders, beyond the emotional. In book three (of five), Avicenna has a discussion of mental illness (*amrāḍ al-raʾs*) which includes emotional disorders, such as melancholy and lovesickness, but also non-emotional mental disorders, such as sleep disorders, defects of the imagination or memory, and general mania.[47] For some of these cases, Avicenna recommends altering one's mode of thinking, but there are also many references to changing one's diet, and procedures like cupping, in order to affect one's temperament, and ultimately the vital spirit.

Given that Avicenna acknowledges and attend to the role of the vital spirit in relation to emotional and non-emotional psychological disorders, we might wonder why the treatise dedicated to unpacking the vital spirit in detail, namely, *Cardiac Drugs*, is almost solely concerned with emotions in terms of its examples. There are several plausible explanations. Perhaps Avicenna simply had more to say about emotions in relation to the vital spirit, or perhaps the states of the vital spirit that play a disposing role for emotions are just much more apparent than those that affect, say, imagination and memory. That would make sense, since the heart is not just the seat of the emotions, but also the organ that produces the vital spirit in the first place. So, relative to other psychological functions, emotions supervene on the vital spirit in a much more significant way. Or, perhaps, since we know that *Cardiac Drugs* was written specifically for a wealthy dignitary (as mentioned in section 1), such a treatment was specifically asked for. Such interest would not be surprising, since emotions are a major part of one's overall wellbeing and enjoyment of life (or lack thereof). In any case, although Avicenna is most explicit about the disposing role of the vital spirit in relation to emotions, what is unique about this discussion in Avicenna's writings is its specificity and the particulars of what is discussed—not the role of the vital spirit in general.

4.4 Psychological emotional dispositions in relation to moral formation

44 See end of section 3.
45 See end of section 3.
46 Avicenna, *Canon* (1982), II.2.1.14, 160.
47 Avicenna, *Canon* (1987), vol. 2, 877-901.

Avicenna makes the connection between the physiological side of how we are disposed to emotions, and the broader topic of moral formation. To be sure, development into a virtuous person involves more than physiological dispositions towards certain emotions, but the physiology is a factor Avicenna chooses to emphasize. In *Cardiac Drugs* he makes the following comment in the midst of his discussion of different types of preparatory causes for emotions:

> [W]hen acts and emotions [*infiʿālāt*] recur, a strong disposition [*malakā quwwiya*] is formed, and character traits [*al-akhlāq*] are acquired in this way. And it is possible that the cause for this is that every emotion leads to an actualization suitable to it, and what is suitable to something is unsuitable to its opposite. And that which is unsuitable for the opposite, if it is repeated many times, diminishes preparation for the contrary, and increases preparation for [that which is repeated] [...] If that is the case, then repetition of joy disposes to joy, and repetition of depression disposes to depression.[48]

The term for translated here as character traits (*al-akhlāq*) is a flexible Arabic term, but it clearly has moral overtones to it. For example, in Al-Farabi's *Directing Attention to the Way of Happiness*, he says that "all ethical traits [*al-akhlāq kulluhā*], from the virtuous to the vicious [*al-jamīl wal-qabīḥ*], are acquired [traits]."[49] Since physiology affects our disposition to certain emotions, and part of what it means to act virtuously or viciously involves how we respond emotionally to a situation, then it makes sense that our our moral character would to some extent supervene on our physical, non-cognitive state.

Yet this is all Avicenna says about the relation of physiology to moral formation in *Cardiac Drugs*, and context from elsewhere suggests that we should take him to only be making a point about preliminary stages of moral formation, or something about the mechanism on which virtue supervenes, and not anything about how complete virtue is achieved. In the Arabic version of Galen's *On Character Traits (Kitāb Al-Aklhāq)*, Galen makes the distinction between different types of virtues and vices. Some virtues and vices involve the exercise of thought, while others do not. The latter are called *akhlāq*. Galen goes on to describe the process of moral formation, where young people grow out of their *akhlāq* and into more complete virtue or vice, as they add judgment to their character, or use thought and habit to modify their character (for better or worse). This is similar to the point Aristotle makes in *Nicomachean Ethics*, where there are two types of excellence, excellence of thought, and excellent of character, but excellence of character is not complete without being guided by thought (in particular, practical wisdom).[50] Presumably part of why Aristotle thinks this is that we are disposed to certain emotions and actions for reasons outside of our control, and it would not make sense to attribute virtue to someone solely on the basis of, say, good genetics.

Although Avicenna does not have any well-attested, canonical work in the same vein as *Nicomachean Ethics*, other texts suggest that he would be fully on board with this notion that full virtue requires rational control. In his *Healing: Rhetoric*, after finishing his discussion of individual emotions in 3.1-4, he opens 3.5 by saying that he is going to discuss the "states that move/dispose [*al-aḥwāl al-muḥarrikah*], by way of [discussing] each character trait [*khulq khulq*] with respect to occurrences [*al-ʿawāriḍ*] [of the just discussed emotions]."[51] Each "state that disposes" is another type of "character trait," and each disposition has different emotions

48 Avicenna, *Cardiac Drugs* (1984), 235.
49 Al-Farabi (1992) 235.
50 On the two types of excellence, see *Nicomachean Ethics* (1994) 1103a. For the need to add practical wisdom on top of character traits in order for them to be complete, see 1144a-b.

associated with it. From there, he focuses on the dispositions typical to people of different ages, with brief remarks about differences in money and societal rank. Some of the dispositions he discusses are cognitive, others are physiological. For example, in contrast to the young, whose hopefulness boils down primarily to their hot temperaments,[52] the elderly are said to be so disposed towards hopelessness not only because of the coldness of their temperaments,[53] but also because they have experienced so many difficulties and setbacks in life (a cognitive disposition).[54] Nowhere in his discussion of these "character traits" does Avicenna say that these circumstantial or physical dispositions constitute virtue, nor that they are guided by reason. Similarly, in *On Governance* (a text that is attributed to Avicenna, but with less surety than his canonical works), he exhorts his readers interested in ethics to "take count of their character traits and temperaments," and then use reason to cultivate what is good, and rein in what is bad.[55]

Thus, though Avicenna's remarks in the *Cardiac Drugs* about the sense in which our physiology contributes to character are quite brief, it seems likely that they refer to something less than complete virtue. It is possible that he is referring to preliminary stages of moral formation, where people have dispositions towards certain types of emotions and actions, which it is then up to them what to either cultivate or rein in. As we saw in the last section, in relation to mental illness, it is possible for doctors to get rid of certain conditions that would make it all but impossible for someone to exert rational control (e.g., extreme depression or madness). But Avicenna never suggests that a medical doctor could positively inculcate virtue by improving physiology. So the role of physiology in moral formation is likely something more preliminary. It is also possible that he is partly referring to the mechanism on which supervenes an aspect of complete virtue. That is, when someone *does* take rational control of their moral formation, and develops into, say, a joyous person, part of this will be reflected in their physiology. There couldn't be a person with a perfected disposition towards courage whose physiology looked just the same as a coward, because physiology affects how we respond to situations. But the more ethically relevant part of the virtue will be what the virtuous person has done with their thought life, not the hand dealt to them in their circumstances, upbringing, and physiology.[56]

5. Physiology of emotional effects

51 Avicenna, *Healing: Rhetoric* (1954) 156. *Psychology: Healing* 4.4 also uses the term *ʿawāriḍ* to refer to emotions.

52 And their natures are prone to believing quickly whatever falls at their feet on account of what is in them of optimism, and a lack of suspicion, and wideness of hope. And all of that follows on account of their hot temperament, which resembles the intoxicated, [and this temperament] strengthens the soul very much (Avicenna, *Healing: Rhetoric* (1954), 157).

53 Avicenna, *Healing: Rhetoric* (1954), 159.

54 Avicenna, *Healing: Rhetoric* (1954), 160.

55 Avicenna, *On Governance* (2007), 229-230.

56 Though the texts on the relation of physiology to ethics are not copious, Avicenna is the main exemplar in the Arabic tradition of this approach. Among Avicenna's predecessors, Al-Kindi and Al-Farabi wrote works on soul-care in the Stoic/Cynic tradition, emphasizing the need for correcting one's thoughts to dispel unwanted emotions (*Dispelling Sorrows* and *Directing Attention to the Way of Happiness*, respectively). A.B. Al-Rāzī and Al-Balkhī, both medical doctors like Avicenna, but they distinguish their works on medicine from their works on soul-care and virtue cultivation, the latter being dealt with through cognitive therapy (the Spiritual Physick and Sustenance of the Body and Soul, respectively). Avicenna has relatively less to say overall about moral philosophy, but what he does have to say skillfully combines medical and cognitive points of view.

5.1 Temperamental effects considered to be primarily of the body

In Psychology 4.4, in addition to discussing the nature of emotions, and the importance of physiology to our dispositions for emotions, Avicenna eventually comes to discuss the nature of emotional effects. What we see in the following quote is a distinction made between emotions, and the sort of physiological changes that we often associate with emotions. Avicenna wants to consider the latter effects, rather than a part of the emotion itself:

> And [as for] fear and anger and depression, the passion [*infiʿāl*] whereby they occur happens primarily on account of the soul. Anger or depression, insofar as they are anger or depression, are *not passions among those passions afflicting the body*, even though they are followed by passions which afflict the body, like the rising or abating of heat, and suchlike. *For those things are not anger or depression itself [laysa nafs al-ghaḍb wal-ghamm]*, but rather things that follow [*yatbaʿ*] anger or depression.[57]

Emotions exist "primarily on account of the soul," and they need to be distinguished, according to Avicenna, from the temperamental effects that follow them, which "afflict the body." In order to understand what Avicenna means by these specifications, referring some things more the soul, some to the body, we need to understand the section leading up to it, in which Avicenna discusses a variety of states that "belong to the soul with the participation of the body."[58]

In *Psychology* 4.4, after the initial discussion about the motive faculties, but before the above text concerning emotional effects, Avicenna makes some distinctions about different types of psychological states: imagination, emotions, hunger, physical pain, health, and so on. Some such states are "primarily" psychological, while others are "primarily" physical. To be clear, the issue is not about whether any of these states are are psychological, or even hylomorphic, in general. Rather, Avicenna is making distinctions between different types of states, all which involve the soul to some degree, and *all* of which "do not occur without the participation of the body." His distinctions are as follows:

> […] conditions/states[59] [*aḥwāl*] that belong to the soul with the participation of [*bi-mushārikah*] the body come in different types. One of them is [1] what belongs to the body primarily but because it has a soul, and another is [2] what belongs to the soul primarily but because it is in a body, and [3] what is between the bodily and soul equally.[60]

Avicenna goes on to provide examples of these three categories. His references to [1] and [2] are clearly laid out. That which is [1] "primarily body" includes includes sleep, waking, health, sickness. That which is [2] "primarily of the soul" includes imagination, memory, irascible and concupiscible appetite, depression, pity and sadness. If he provides any examples of [3], it is somewhat less clear, but the following seems meant to be an explication of states that belong to body and soul equally:

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57 Avicenna, *Healing: Psychology* (1959), 4.4, 198.
58 Avicenna, *Healing: Psychology* (1959), 4.4, 197.
59 *Aḥwāl* is often translated as "states." But, as shown in the introduction $ to this dissertation, Avicenna distinguishes between *malakah* and *ḥāl* in his *Categories* in a way that is useful for the discussion of emotion, and that distinction is best made by translating *ḥāl* as "condition," and reserving "state" for *malaka*.
60 Avicenna, *Healing: Psychology* (1959), 4.4, 197.

> As for pain from a strike, or from the transformation of [one's] bodily temperament, the event therein is *something that exists in the body* because of a fracturing of the connection and the temperament, on account of the *states of the body insofar as it is a body. And it is also something existing in the senses* which sense it insofar as it is sensed—but [the event that is sensed occurs] because of the body. And it seems that hunger and appetite [*shahwah*][61] are of this sort.[62]

Physical pain and hunger here are discussed as states that are due to states of the body, insofar as it is body, but they are *also* something that exists in the senses. This is markedly different from they way he talks states that are "primarily of the soul," about which he says "there is *nothing* in [such states] which is an occurrence of the body insofar as it is a body."[63] States like imagination and emotions are primarily psychological, and though embodied, are not caused by anything in the body insofar as it is body. States like physical pain and physical hunger, however, are both sensed, *and* owed to the body insofar as it is body.

With these distinctions, Avicenna appears to unpacking a similar distinction from the beginning of Aristotle's *Parva Naturalia*. It is not surprising to find Avicenna incorporating discussions stemming from the *Parva Naturalia* in *Psychology* 4.4 since, as Hansberger has shown, much of Book 4 as a whole picks up on themes found in *Parva Naturalia*, in addition to *De Anima*.[64] The distinction in Aristotle's text is somewhat different from that which Avicenna makes, which is likely due to the transmission history of this Aristotelian text. As shown (again) by Hansberger, the Arabic version of the *Parva Naturalia*, which went by the name of *Kitāb al-ḥiss wa-l-maḥsūs*, is less of a translation and more of an adaptation. But in this case we need to start with the original Parva Naturalia as a frame of reference, since the first part of *Kitāb al-ḥiss wa-l-maḥsūs* is not extant[65]

In the beginning of Aristotle's original *De Sensu*—the first book of *Parva Naturalia*—he distinguishes between several ways of approaching the discussion of the soul. On the one hand, he says that he has already (in *De Anima*) talked about (1) *common* features of the soul, when the soul is taken "by itself." This includes sensation, memory, passion, desire, and appetite generally, and in addition to these pleasure and pain."[66] Thus, he says, there remains two further categories to discuss. There are (2) other *common* features of the soul, but *not* with respect to the soul "by itself." This second category includes which includes "waking and sleep, youth and old age,

61 Despite this being the same term as "concupiscible appetite," which is classified as a state that is primarily of the soul, it seems to be a way of referring to very basic animal urges, of which hunger would be a prime example, as opposed to emotions based on cognitive evaluations. Avicenna also uses *shahwah* as a genus that includes hunger in *Healing: Psychology* (1959) 2.3, 67: " hunger is [simply] the appetite [*shahwah*] [for] the hot and dry, and thirst is the appetite [*shahwah*] for the cold and moist."

62 Avicenna, *Healing: Psychology* (1959), 4.4, 198.

63 Avicenna, *Healing: Psychology* (1959), 4.4, 197.

64 Hansberger (2010) 158.

65 Hansberger (2010) 144.

66 See Aristotle, *On Sense and Sensible Objects* (1986), 463a. These sort of functions the essence of the soul which, as Avicenna explains at the beginning of the *Psychology*, is that which accounts for behavior that is "not according to a single pattern, or which does not lack will. (Avicenna, *Healing: Psychology* (1959), 1.1, 4). In other words, all psychological behavior exhibits some sort of goal-directed behavior. Plant life is "not according to a single pattern," which can be seen by way of contrast with, say, rocks, that remain constant in terms of their capacities and tendencies. Plants grow in complex ways, changing over time, and adapting to their environment. Animal and human behavior is more clearly psychological, since it is voluntary, meaning that its actions are based off of appetites or choices in response to cognition. None of the sorts of states in category [1] (waking and sleep, etc.) are manifestations of goal-directed behavior.

inhalation and exhalation, life and death."[67] Finally, there are (3) states that are particular to certain species. The last of these—faculties particular to species—are discussed in Aristotle's biological works on plants and animals, so *Parva Naturalia* is thus primarily concerned with type (2) states. But some of the activities given as examples of type (1) nonetheless show up in the discussion of *Parva Naturalia* (e.g., *De Sensu* and *De Memoria* discuss sensation and memory, respectively). This suggests that the distinction being made between (1) and (2) is not primarily between groupings of faculties, but between ways of approaching a discussion of psychological faculties. In other words, you could talk about sensation solely with respect to the soul, giving it a more abstract, formal account. Or you could integrate issues of physiology into your account about sensation, as done in the *Parva Naturalia*. So much for the distinctions Aristotle makes towards the beginning of the original *Parva Naturali.*

It is the distinction between (1) and (2) that Avicenna and (and perhaps the adaptor in *Kitāb al-ḥiss wa-l-maḥsūs*) appear to be trying to capture with the language of "primarily soul" and "primarily body." These are both, of course, discussions of faculties that must be embodied in order to exist. But it is one thing to discuss common psychological faculties in the abstract, on a purely functional level. It is another thing to discuss how those common functions play out, when realized in bodies, and affected by strictly material changes. As Avicenna explains, "Sleep, waking, health and sickness are states that belong to the body and its principles, so they belong to [the body] primarily, but nevertheless they only belong to the body because it has a soul."[68] Non-living things do not experience sleep, waking, health and sickness. Sleep would not occur if there were no such thing as sensation. Health would not occur were the body not to have an ideal, soul-given function in the first place. But what causes a living being to need sleep, or to fail in health, is not anything to do with the soul's function, considered in the abstract. Rather, it has to do with the needs and failings of the body's matter. We sleep not because sensation needs rest, but because sensation, as an embodied function, taxes physical resources, and those physical resources need time to recover.

So Avicenna's distinction between "primarily of the soul" and "primarily of the body" can be summarized as follows: for a state to be "primarily of the soul" is for it is be a psychological state, talked about strictly from the point of view of a living being's soul-given, goal-oriented functions. For a state to be "primarily of the body," is to discuss a psychological state that would not arise, were it not for the nature and demands of the particular body that the soul is embodied in.

Avicenna's distinction is thus different than Aristotle's in the following way: Aristotle is trying to distinguish ways of talking about faculties, and some faculties can be discussed in both ways (e.g., sensation in the abstract, or the particulars of embodied sensation). Avicenna, on the other hand, is trying to distinguish categorically different types of psychological states: [1] those that are psychological, but whose root cause lies with the particular body the soul in instantiated in, and [2] those pertaining to the essence of the embodied soul and its goal-oriented functions.

Whether the development comes from Avicenna himself, or the adaptor of the text (and Avicenna is just mirroring it) is impossible to tell, since, as mentioned above, the first part of *Kitāb al-ḥiss wa-l-maḥsūs* is not extant. One bit of evidence that the development stems from the adaptor is that in Averroes relates the same categories [1] and [2] in his *Epitome of the Parva*

67 Aristotle, *On Sense and Sensible Objects* (1986), 463a.
68 Avicenna, *Healing: Psychology* (1959), 4.4, 197

Naturalia, which was also based on the *Kitāb al-ḥiss wa-l-maḥsūs*[69], and Averroes generally tries to stick close to the text he is commenting on or summarizing, where possible. Averroes explains that "primarily body" states, like sleep, are in some sense more necessary, and are related to the "primarily soul" functions as a genus is related to species. That is, sleep is a state wherein all the senses are "at rest."[70] What this sort of talk captures, that Avicenna would agree with, is that "primarily body" states are in a sense conditions without which the more essential functions would not exist. But of course, were there no essence of the soul, there would be no "primarily body" psychological states either, so this merely is a matter of emphasis. Nothing in Averroes's analysis clashes with Avicenna's analysis that what sets "primarily body" states apart is that they are most directly explained by material changes.

5.2 The distinction between emotions and their temperamental effects

With Avicenna's distinction between states that are "primarily of the soul" and "primarily of the body" in hand, we can return to his remarks about emotions and their effects. If we keep in mind that this text comes just after the texts we have been unpacking regarding the three categories of psychological states, it is clear that he is appealing to those distinctions:

> And [as for] fear and anger and depression, the passion [*infiʿāl*] whereby they occur happens primarily on account of the soul. Anger or depression, insofar as they are anger or depression, are *not passions among those passions afflicting the body*, even though they are followed by passions which afflict the body, like the rising or abating of heat, and suchlike. *For those things are not anger or depression itself [laysa nafs al-ghaḍb wal-ghamm]*, but rather things that follow [*yatbaʿ*] anger or depression.[71]

When Avicenna says that emotions are not passions that "afflict the body," contrasting this with passions that do, like "the rising or abating of heat,"[72] we should understand this to reflect the division between states that are primarily of the soul, versus those that are primarily of the body. Neither of these sort of states happens in anything that is inanimate, so they are psychological states that happens with the participation of the body—just of different kinds.

Given how these distinctions were just discussed, it makes sense why Avicenna would draw the lines where he does. When an emotion occurs, it is some kind of inclination or impulse, supervening on the heart, and the vital spirit that is in the heart. In most cases, an emotion would then have effects throughout the rest of the body, simply due to the fact that the vital spirit proceeds to course through the various organs and arteries. But what shape these effects take

69 These faculties are of two kinds: first, those that are attributed to the body of an animal by virtue of the existence of the soul in it, as for instance, sense-perception and motion; second, those that are attributed to the soul by virtue of the body [in which it exists]. The faculties of the second kind constitute genera, such as sleep and waking, youth and old age, death and life, inhalation and exhalation, health and disease, and length and shortness of life. See Averroes, *Epitome of the Parva Naturalia* (1961), 3. Averroes has a similar discussion, expanded to four distinctions, in his Long Commentary on the De Anima (2009), section 3.

70 Averroes, *Epitome of the Parva Naturalia* (1961), 3-4.

71 Avicenna, *Healing: Psychology* (1959), 4.4, 198.

72 This phrasing recalls Aristotle's suggestion at the beginning of De Anima that things like rising or abating of heat count as the "material causes" of emotions, with what Avicenna calls their "essence" constituting their "formal cause (403a30)." Avicenna might not necessarily disagree with Aristotle on this point, since as we have seen, the emotion itself supervenes on the heart and the vital spirit that is in the heart, which could itself get hot in certain emotions. But Avicenna is here concerned with something beyond the "material cause" of emotions.

precisely would be due to the material conditions of the body. Emotional effects are far more variable than the essence of an emotion.[73] Anger is anger, from one person to another. But how this physically effects a person will be largely determined "on account of the states of the body insofar as it is a body." Of course, given that humans have roughly the same physiology, certain emotions have characteristic effects: anger mostly makes us feel hot all over. But this physical effect could be otherwise, and anger would nonetheless still be anger. Two people might both feel the same sort of shame, but one person might be far more prone to turning red.

One might argue that Avicenna is not describing two different events in the above text, but two different aspects of the same event. Yet Avicenna makes a sharp distinction in this text between that which is, precisely speaking, the emotion (*nafs al-ghaḍb wal-ghamm*), and that which follows (*yatbaʿ*) the very emotion. This language of characteristic effects "following" emotions is repeated in one of Avicenna's medical texts, the *Cardiac Drugs,* so we know that his usage here is intentional[74]. For something to "follow" something else implies a close relationship, but also distinction. It would be possible to translate "follows" as "entails" in this case, as well. So Avicenna realizes that these characteristic effects are vital to how emotions fulfill their role in animals and humans. But we wouldn't want the closeness of the two phenomena to obscure the fact that Avicenna thinks it important to draw attention to their distinction, presumably due to the variability of the effects, which are dependent on the state of the body.

5.3 Further examples of emotional effects

The place where Avicenna most schematically spells out the "primarily body" effects which follow of emotions is in a later section of the *Canon* on the pulse, titled "the pulse of psychological emotions [*nabḍ al-ʿawāriḍ al-nafsāniyya*]."[75] The pulse, Avicenna holds, is an act of the heart and the arteries that move and modify the vital spirit.[76] Avicenna describes different pulse states caused by five key emotions, and the the analyses are not surprising: anger [*ghaḍb*] causes an increased pulse, and an agitated vital spirit throughout the body. Pleasure [*ladhdha*] and gladness [*surūr*] lead to a calm pulse, and a calm vital spirit spirit. Depression [*ghaḍb*] slows things down too much, with a sluggish pulse. Fear [*khawf*] makes the pulse erratic. Since the pulse is felt throughout the whole body, the vital spirit is affected in these ways throughout the whole body, which in turn affects the functioning of various organs.

That is, it is important to note that the changes in the vital spirit are just the beginning of the "primarily body" effect that emotions have. When Avicenna talks about emotional effects, he more often talks about "temperamental changes," as opposed to changes in the vital spirit, and this is because every part of the body has a temperament that can be changed by the character of the vital spirit that runs through it. For example, in the following text (which we already looked

73 A contrast could be be made between a view like Avicenna is describing here, and a Jamesian view on emotions. On William James's view, emotions are constituted by an awareness of the characteristic bodily changes (i.e., sadness is awareness of crying, anger is awareness of getting heated througout the body). A neo-Jamesian view adds to this that the bodily changes one is aware of are in some way intentionally directed at objects. (Deonna, & Teroni, (2012) 63-66). But Avicenna would say that the emotion is prior to these changes, and able to be fully grasped, without them.

74 Avicenna, *Cardiac Drugs* (1984), 235-236. Sometimes this term is used to describe the way that emotions follow dispositions, sometimes to describe the way temperamental effects follow emotions.

75 Avicenna, *Canon* (1982), II.3.1.1.1, 200.

76 Avicenna, *Canon* (1982), II.3.1.18, 215.

at in the context of human emotions)[77], Avicenna discusses how emotional pain can eventually lead to a break-down of the temperaments in the vegetative faculties, using some of the same "primarily body/soul" language that we have just seen in 4.4:

> The emotion [*infiʿāl*] of joy [*surūr*] or pain [*gham*], […] is one of the psychological apprehensions, and does not occur to the body insofar as it is body, and [that joy or pain] affects the growing, nutritive power such that there occurs in it, on account of the occurrence that first occurs to the soul—let that be intellectual joy [*al-faraḥ al-naṭqī*]—a strength and effectiveness in its act, and on account of the contrary occurrence—let that be intellectual pain [*al-ghamm al-naṭqī*], in which there is no physical pain—a weakness and an impotence that corrupts its effectiveness. And perhaps the temperamental disposition will be broken down through that [weakness and impotence].[78]

The familiar experience Avicenna seems to be describing here is how negative emotions can effect digestion, and make us physically unwell in a variety of ways. Those temperamental changes are contrasted in this text with the emotional states, which "do not occur to the body insofar as it is body." To supply another example (not Avicenna's), when someone's face turns red because they are embarrassed, this has to do with changes in the blood vessels in the skin. The vital spirit would only be a remote cause for such a change. Again, anxiety might cause someone to sweat, which is something beyond an initial change in the vital spirit. Such physical changes go beyond mere changes in the vital spirit, though there is no doubt a connection.

How exactly an emotion plays out, in terms of its "primarily body," temperamental effects, depends on the physical state of the emoter, which is why Avicenna's approach of distinguishing these effects from the essence of the emotion makes sense. Some emotions frequently lead to sexual arousal,[79] others increase or mitigate disease symptoms.[80] But despite certain temperamental changes being commonly associated with each emotion, things could be otherwise from species to species, or for individuals within species, without changing the core of what it is to experience a given emotion. Were Avicenna to build particular physical effects into the essence of a given emotion, it would compromise our ability to provide any kind of unified definitions of emotion-types.[81]

5.4 Emotions and the necessity of some sort of physical effect

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77 See chapter 2, at fn. 44. $

*7*8 Avicenna, *Healing: Psychology* (1959), 1.3, 31-32. Emphasis mine.

*7*9 Avicenna, *Cardiac Drugs* (1984), 229, emphasis mine.

80 Avicenna, *Canon* (1982), II.2.1.14, 160.

81 Such is the problem that James's view, mentioned above (section 5.2, footnote 73 falls into. James thought that the defining feature of a given emotion was the physical change, awareness of which constituted the emotion. But as Walter Cannon's criticisms of James's theory (that emotions are constituted by awareness of internal bodily changes) was that the internal physical changes we associated with emotions are too indistinct to support the strong distinctions we make between emotion-types. Modern neuroscience has since shown there are more physical consistencies between people with respect to particular emotion-types than Cannon granted, but this has variously only been shown to be true for basic groups of emotions (e.g., fear and sadness are both correlated with high heart rates and low skin conductivity responses), or a few basic emotion types (e.g., anger, happiness, sadness and fear can be shown to be distinct along different physical measures)—not a wide variety of individual emotions. The idea that each emotion-type has a unique neural pattern is more promising, at least in theory (since neural scanning is not fine-grained enough to pick up on all the differences between emotion types). See Johnston, & Olson (2015), 51-55. $

Although emotions are essentially something distinct from their particular physical effects, it is essential that emotions have *some* physical effect. This is a point Avicenna makes in separate text, his *Marginal Glosses on Aristotle's* De Anima, but it helps balance out the conclusions of the preceding sections. The relevant discussion occurs in Avicenna's commentary on Aristotle's *De Anima* 1.1, where Aristotle mentions "common affections" that involve both body and soul. In this text, Aristotle cites the following as examples of common affections: sensation, emotions like courage, pity and joy, and the concupiscible appetite and irascible appetites more generically. As seen in section 5.1 of this chapter, Avicenna understands there to be a variety of ways that states can be said to "involve both body and soul." Aristotle's discussion of common affections provides Avicenna fertile grounds to make some similar distinctions, this time under Aristotle's heading of states that "only exist with the body." What emerges from Avicenna's analysis of Aristotle is that he thinks emotions (and the internal senses more generally) are states that, while "primarily of the soul," *necessarily* have effects in the body. Up to this point we have been emphasizing the distinction between emotions and their effects, but *Marginal Glosses* shows that we should not take from this distinction that we could have emotions without any physical effect whatsoever.

In order to understand what Aristotle means when he says that emotions and appetites cannot exist without the body, Avicenna distinguishes three senses in which something can be said to "not exist without a body." Avicenna summaries the three senses upfront as follows:

> I know that "the thing which does not exist except with the body" is understood in three senses: [1] One of them is that that thing is a bodily form; [2] the second is that its cause is a state of the body; [3] the third is that there is together with it a bodily passion, necessarily.[82]

This list is different than the schema of psychological states we saw earlier from *Psychology* 4.4, because these are not all necessary states of an ensouled organism: Avicenna is just describing different states that could be referred to as requiring a body, in some way or another. The first and most straightforward sense refers to corporeal forms, Avicenna's example being the smoothness of some body.[83] By definition, smoothness is an accidental form which cannot be predicated of anything that is not material. The second and third states that cannot exist without a body are both states—as Avicenna later makes clear—that exist because of the *participation* between body and soul, rather than just being straightforwardly corporeal forms.[84] Before discussing them further, we can outline them as follows:

- States that "do not exist except with a body":
  - States that are *not* due to the the participation between body and soul:
    - 1) Corporeal forms (e.g., smoothness)
  - States that *are* due to the the participation between body and soul:
    - 2) State of the soul *caused by* a body
    - 3) State of the soul that necessarily *causes something in* a body

82 Avicenna, *Marginal Glosses* (1947), 77.16-18.
83 Avicenna, *Marginal Glosses* (1947), 77.20.
84 Avicenna, *Marginal Glosses* (1947), 77.21, 25.

Turning to (2), this sort of state is due to the participation between body and soul, but such that the body is the cause.[85] Avicenna's immediate example of this sort of state is a hypothetical scenario, reached by reversing the normal situation between celestial intellect's and spheres. To start with the normal scenario, Avicenna first recalls celestial intellects' ability to influence the spheres that they are associated with. Intellects influence those spheres, but they do not inhere in the spheres as forms in matter. Having reminded us of this, Avicenna then constructs a hypothetical situation where the causality is reversed, such that we get an illustration of this second category of "only existing with a body": if the celestial spheres were able to influence their associated intellects to be in some state, that state would only exist *because* of a body (the sphere), even though the intellect (a non-body) would not be "joined" to the body which is doing the causing. As mentioned, Avicenna presents this as a hypothetical scenario, since celestial spheres do not in fact causally influence their intellects. But in his discussion of (3), we see that there are also more mundane examples of the way that body can influence soul.

Avicenna distinguishes states of type (3) as those which "do not exist except with a body" in the sense of entailing that something is necessarily caused *in* a body, by a soul, as opposed to entailing (as in the second type) that something is caused *by* a body, in a soul. Avicenna chooses to explain this third type by using appetites/emotions as an example, although he later makes clear that the rest of the acts of the animal faculties fall under this heading as well. And it is immediately apparent that appetites are actually examples of both the second *and* third way in which something "only exists with a body," because the second way is pointed out in the explanation of appetites even before the third. In other words, in his illustration of the third distinction Avicenna actually incorporates both (2) and (3), as follows:

> [77.25] And likewise the cooperation [of the body and soul is sometimes] such that, given a passion in one of them, there follows from that fact [78.1] a passion in the other. He [Aristotle] brings up and example of this: concupiscible and irascible appetite. It cannot be shown that [lit: it does not suffice for proving that] concupiscible and irascible appetite are purely corporeal simply on the basis of the fact that the body, according to its states, is affected in an angry or desiderative way [by concupiscible and irascible appetite]. For [Type (2)] it is not unthinkable [i.e., it is reasonable to think] that the body, when it enters into [such] a state, there occurs to it—that is, to the soul, [which is] essentially separate from the body [but] connected to the body through a certain relation whose occurrence in it the soul is prepared for—a passion particular to the soul due to bodily causes.[86] [And it is reasonable to think that] [Type (3)] when the soul enters a state which is particular to it, there follows from that [78.5] a state in the body in terms of the boiling of the blood or the spreading of the organ. And we know that the soul is not joined to the very blood dispersed in the body, [but nevertheless] there could happen to [the blood] passions following passions of the soul or [following passions] of the organ [i.e., the heart] by which there is the first connection to the soul.[87]

At the beginning of this text, Avicenna is cautioning against the idea that just because emotions are partially caused by bodily states, this "does not suffice to prove" that they are merely physical. The view Avicenna seems to be cautioning against here is the Galenic idea the animal and vegetative soul's capacities just are equivalent to the mixture of the body, and that their activities are just constituted by changes in the body. This confirmed by his later mention of

85 Avicenna, *Marginal Glosses* (1947), 77.21.
86 The Arabic of the parenthetical in this sentence is difficult, but the rest seems clear.
87 Avicenna, *Marginal Glosses* (1947), 77.25-78.7.

Galen in the same section, and a reference to the work wherein Galen affirms such a view, his *The Capacities of the Soul Depend on the Mixture of the Body.*[88]

Continuing to unpack this text, it is perfectly plausible—contra Galen—that acts of the animal and vegetative soul are acts of the soul, with various relations to the body. Referring back to type (2) states, Avicenna reaffirms that emotions could have causes that can be construed as bodily, despite the emotion itself being something psychological. Presumably the non-psychological bodily causes in mind here are dispositional physical causes, as seen in section 4 of this chapter. More to the point, Avicenna adds that, once caused, emotions themselves necessarily cause something in the body, despite being in themselves something of the soul (i.e., something "primarily psychological," in the language of *Psychology* 4.4). The effects described at the end of text above text are more explicitly of the temperaments, exemplified in involuntary rising blood pressure and sexual arousal. So this is what it means to "not exist except with a body" according to sense (3): to be something primarily psychological, which nonetheless necessarily has an effect in the body.

Not only is it plausible that one of the soul's acts have such relations to the body, but in the case of the emotions, we have other evidence that their "first principle" is the soul:

> And evidence that anger and desire have some sort of separate account [*lahumā infirādu ḥukmin bi-wajhin*], is that the intellect prevents [*yamnaʿ*] anger and desire, but it is not able to prevent sensible pain or pleasure. So it is understood that the first principle of these [anger and desire] is the soul. […] For it is reasonable to think that anger and desire are something in the soul from which follow something in the body, without their being understood [merely] as an intention in the body or subsisting in it.[89]

The idea here seems to be that emotions, unlike sensible pleasure and pain, are (to use contemporary terminology) "cognitively penetrable."[90] In other words, we are able to change things about occurrent emotions with our thoughts in ways that we cannot change sensible pleasure and pain. When you stub your toe, you cannot will or think the pain away. But when you experience emotional sadness, you can probe the beliefs underlying that emotion, and possibly make it go away.

So, we have seen in this section that Avicenna thinks acts of the animal and vegetative soul —using emotions as the most obvious example—are acts of the soul, despite the fact that they are "necessarily" followed by some sort of bodily passion. It is the word "necessarily" from the first text cited above that provides much of the payoff for the sake of our discussion.[91] In previous sections we saw Avicenna take pains to distinguish emotions ("primarily of the soul") from their temperamental effects ("primarily of the body"). What we see here adds to that picture by showing that emotions are part of a class of acts where the effects that are "primarily of the body" are to some extent necessary. Insofar as emotions are acts of the animal soul, they must be followed by changes in the body. We saw in the prior section that the precise physical changes

88 Avicenna, *Marginal Glosses* (1947), 78.19. Galen's work, *The Capacities of the Soul Depend on the Mixture of the Body*, was translated into Arabic and available. See Gutas (2010) 807. Such a view is affirmed in the text at Galen, *Capacities* (2013), 386.
89 Avicenna, *Marginal Glosses* (1947), 78.14-18.
90 For a discussion of this concept in Aquinas's theory of emotions, see King (2012), 216.
91 See above at footnote 82. $

that follow are variable, but now we see that—despite this variability—there must be *some* physical change, or we are no longer talking about the same sort of stat[92]e.

5.5 Further effects: action-readiness and cognitive influence

Though Avicenna does not draw the connections explicitly, there seems to be some explanatory payoff to his emphasis on emotions' temperamental effects. The first and most obvious is that it helps make sense of how how emotions play the role they do in animals and humans, in terms of putting us into states of action-readiness. As we saw in chapter three, emotions are the stage of the motive faculty prior to a practical judgment, which practical judgment leads to concrete action. Emotions merely *incline* towards some object or goal. That inclination, we have seen here, is essentially born out in terms of a state that is "primarily of the soul." But as a matter of fact, emotions in animals and humans have temperamental effects throughout the body that put the organism, as a whole, into a state of inclination. Though Avicenna is writing far before the distinction between the sympathetic and parasympathetic nervous systems, his descriptions of what emotions do parallel their functions: the sympathetic system pumps blood rapidly to divert resources to muscles and action-oriented organs (as in anger), while once a goal is achieved, the parasympathetic system restores balance (as in joy).[93]

A second payoff, albeit more tenuous, concerns the effect of emotions on cognition. The effect of emotions on cognitions is stated most bluntly in Avicenna's definition of emotion at the start of his *Healing: Rhetoric:*

> The emotions [*al-infiʿālāt*] […] are states [*aḥwāl*] through which one's judgment differs [*yakhtalif*], through a difference [brought about by] the transformation [*takayyuf*] of the judger [when they are in that emotional state]."[94]

This definition occurs at the beginning of a discussion designed to help the rhetorician bring about emotions in the judge and jury, emotions that are suited to garnering sympathy for their defendant, or stoking animosity towards the accused. That this change in judgment is the result of undergoing an emotion helps explain why Avicenna earlier in the same section describes the rhetorician's task as a kind of "subtle manipulation": to get someone convicted of a crime merely

92 Though Avicenna does not draw this point explicitly, an implication of the fact that emotions necessarily cause things in a body is that states analogous to particular emotions, but in subjects without a body, might not properly be called emotions. Or at the very least, we would need to be aware of the significant difference between emotions that are necessarily followed by a bodily passion, and "emotions" that are not, if we wanted to stretch the terminology that far. Delight of the animal soul and intellectual joy, experienced in this life, with a body, are clearly emotions. But intellectual joy experienced once the rational soul is separated from the body, or the joy experienced by the Necessary Existent, while they could still be called a type of joy, would only be an emotion in a much looser sense. One of the things that seems essential to an emotion (and all other acts of the animal soul, for that matter), is that it has *some* effect on the body. This is presumably why Avicenna, whenever discussing outlier "emotion" states, never uses the standard generic terminology that we see around his discussions of emotions, such as *infiʿālāt*. See the introduction of the thesis for an overview of such terminology.

93 See discussion in Johnston and Olson (2015), chapter 1.

94 Avicenna, *Healing: Rhetoric* (1954), 130. This of course parallels Aristotle's own definition of emotions in the Arabic version of his Rhetoric: "The passions [*al-ʾālām*] are those things which, when the one judging is changed [*yataghayyar*] by them, their judgments differ [*yakhtalif*], and pleasure [*al-ladhdha*] and pain [*al-adhā*] are necessarily involved in their occurrence [*yalzamuhā*]." See: Aristotle, *Ars rhetorica* (1982), 83.

because the jury is angry with them leaves plenty of room for error, since anger can be stirred up by causes that have nothing to do with their guilt, and then misplaced on the accused. If you become envious towards someone, you might be more likely to inflict the harm of a harsh sentence on them, however unjustified that might be.

However, the mechanism by which emotions "transform" the emoter is not discussed in detail. We know that the transformation is not simply a reference to the evaluative perception that triggered the emotion, since that is prior to the emotion, and we are here talking about an effect of the emotion itself. Moreover, as mentioned in the prior paragraph, emotions don't always have the same targets as the causes which trigger them: you might be mad about your performance at work one day, and then take this out on your spouse, who had nothing to do with work. What seems more likely is that the general physiological changes which emotions cause, which can affect the body as a whole, cause our judgments to change. For example, cognitive function is affected by the temperament of the brain, and since the body is a connected system, emotions can affect that temperament.[95] As mentioned, Avicenna does not make this point explicitly, but he seems to have the resources to do so. Of course, emotions do not always affect cognition, nor do they do so in predictable ways. which is perhaps another reason why Avicenna keeps these whole-body temperamental changes distinct from the essence of an emotion.

6. Conclusion

Avicenna's discussions of the physiological of emotions show a striking level of detail—as he himself reminded us in the text from the end of *Psychology* 4.4—and they help him explain a variety of philosophical issues related to emotions. By separating out temperamental dispositions and effects from that which underlies an occurrent emotion, he isolates the core of an emotion itself. His discussions ground preliminary aspects of moral formation, and help fill out the picture of how emotions prepare us for action. Moreover, physiology helps explain why emotions occur in the face of the same object at some times, while at other times they do not, and why their strength varies when the objects stays the same.

To conclude, we should pause to reflect on the significance of Avicenna's assertions in his medical writings that there is a strong link between emotions and the vital spirit. For example, in in texts cited in sections 2 and 3 of this chapter, emotions are "linked" to the vital spirit,[96] in they are "passions" of the vital spirit,[97] and they are "particularly associated" with the "vital spirit that is in the heart."[98] At first glance these descriptors might have be taken to mean that the vital spirit is in some way an organ solely dedicated to emotional functions. Yet, as we have seen, most of what Avicenna has to say about the vital spirit and its relation to emotions could be said of other psychological faculties, and indeed *is* said of other faculties, though not in as much detail. Emotions do supervene on the heart, and the vital spirit *in the heart*. But insofar as the vital spirit throughout the rest of the body facilitates the functioning and communication of various faculties, all the soul's faculties will all have dispositions and effects in the vital spirit, to some degree or other.

95 Aquinas later says that this is how emotions affect changes in cognition. Discussed at Pickavé (2008), 193.
96 See footnote 10 above. $
97 See footnote 8 above. $
98 See footnote 9 above. $

Finally, what Avicenna in fact says about the dispositions for emotions and effects of emotions in the vital spirit is significant, but it is not the whole story for either emotional dispositions or effects. We are disposed to emotions for cognitive reasons as well as physiological reasons, and while the vital spirit might be the most immediate effects of an emotion, characteristic effects of emotions involve other aspects of the body as well, as discussed in section 5.3 above. Thus, Avicenna manages to unpack the physiological of emotions to the high level of detail that he does, all while keepings these details in their proper place in an overall theory of motivation and action.