

IS ARISTOTLE'S PHILOSOPHY OF MIND FUNCTIONALIST?

Nathaniel Goldberg - Ohio University

Abstract

Is Aristotle's philosophy of mind functionalist? In this paper, I take to task the recent debate on just this question. After summarizing contemporary functionalism, I provide textual evidence from the *De Anima* and *Metaphysics* that Aristotle's philosophy of mind is functionalist. Then I respond to a series of recent objections to this view. In so doing, I show that those thinking that Aristotle's philosophy of mind is not functionalist attribute to functionalism characteristics that it need not have. What results then is not merely a historical investigation into Aristotle but a refresher for contemporary philosophers of mind.

Asking whether Aristotle's philosophy of mind is functionalist might seem anachronistic, since functionalism partially developed as an attempt to find a scientific successor to Cartesian dualism. Yet there are three reasons to take the question seriously. First, Aristotle's own philosophy of mind is at least partially an attempt to find a scientific successor to Platonic dualism. According to Plato, body and soul are separate substances, the soul trapped inside the body but nonetheless capable of existing without it.¹ For Aristotle, not only are body and soul the same substance,² so that neither can exist without the other, but different sorts of bodies have different sorts of souls.³ The second reason to take the question seriously is that Putnam, a

¹ See, e.g., *Phaedo* 81e.

² On my read of Aristotle, a substance is matter in a particular form—where a form might be understood as a structure or organization. As I explain below, for Aristotle, a soul is the form of a living body, where the body is itself the matter. Thus, according to him, body and soul are the same substance: the body is the substance's matter, the soul its form when alive. See notes 5 and 8 and Part II generally.

³ Cf.:

[T]hose have the right conception who believe that the soul does not exist without a body and yet is not itself a kind of body. For it is not a body, but something which

founder of functionalism, claims indebtedness to Aristotle.⁴ The third is that much of what Aristotle says in both the *De Anima* and *Metaphysics* could be said by a functionalist.

In Part I of this essay, I summarize functionalism in contemporary philosophy of mind. In Part II, I provide textual evidence that Aristotle's philosophy of mind is functionalist. In Part III, I respond to objections, in part showing that those who think that Aristotle's philosophy of mind is not functionalist attribute to functionalism characteristics that it does not need to have. What results is not merely a historical investigation into Aristotle but a refresher for contemporary philosophers of mind.

I. Functionalism

In contemporary philosophy of mind, functionalism "characterize[s] mental states in terms of their causal roles, particularly, in terms of their causal relations to sensory stimulations, behavioral outputs, and other mental states" (Block 1980, p. 173). Thus functionalism might characterize a particular instance of anger in terms of its causal relations to hearing certain sounds, believing that someone has said something insulting, and saying something insulting back. From this definition four features of functionalism follow.

(a) Mental states are defined in terms of functional role and independently of the type of material that comprises the system in which they function. Putnam writes: "[T]his whole question [of the mental] has nothing to do with our substance.... We could be made of Swiss cheese and it wouldn't matter" (1975, p. 242). What matters is not of what the system is made but how it is functionally organized. In fact, Putnam earlier stressed: "[T]he functional-state hypothesis is *not* incompatible with dualism!" (1967, p. 200). Even a system composed of

belongs to a body, and for this reason exists in a body, and in a body of such-and-such a kind. Not as our predecessors supposed, when they fitted it to a body without any further determination of what body and of what kind (*DA* 414^a19-24).

(References to Aristotle are to Ackrill's translation.)

⁴ See Putnam 1967 as a foundational text in functionalism, and 1975 where Putnam cites Aristotle. (In this paper, references to contemporary texts are to the original year of publication, with page numbers corresponding to the reprinted editions, if any, indicated in the Bibliography. Emphasis in quotations is in the original unless noted otherwise.)

body *and* soul, where each is a *different* substance, could be functionally organized; if the functionalist is right, then such a dualistic system could possess mental states in virtue of the organization *of* body and soul. This is a point to which I return in the final section of this paper.

(b) Functionalism licenses mentalistic terms. The functionalist way above of characterizing anger commits one to both anger and belief. Functionalism is reductive, since mental states are reduced to functional organization. It is not eliminativist, since functional organization can itself countenance mental states.

(c) Functionalism permits (though does not require) ontological monism. Functionalism, by reducing mental states to functional organization, allows mentalistic terms to refer to the functional organization of whatever type of substance one pleases. Nonetheless most functionalists are physicalists, taking mentalistic terms to refer to functional states of physical systems.

(d) Functionalism does not force one to disregard type of material altogether. Though Putnam claims that we could be made of Swiss cheese, some functionalists contend that only certain types of matter can instantiate the right sort of form or functional organization to produce mentality. Dennett, a functionalist, goes so far as to write: “[I]t is empirically unlikely that the right sorts of programs [or rules for functional organization] can be run on anything but organic, human brains!” (1987, p. 326).

II. Aristotle and functionalism

Does Aristotle’s philosophy of mind share these four features? Consider each in turn.

(a) Mental states are defined in terms of functional role and independently of the type of material that comprises the system in which they function.

Does Aristotle’s view share this feature? Speaking of those who agree with him that “affections of the soul are principles involving matter,” Aristotle writes: “Hence their definitions are such as ‘Being angry is a particular movement of a body of such and such a kind, or a part or potentiality of it, as a result of this thing and for the sake of that’” (403^a26-7). Aristotle defines ‘anger’ in terms of the functional role that it plays in an animal, causing a body to move in a certain way as a “result of,” “for the

sake of," or *caused* by, something else. That these affections involve a body shows that they are causally related to a body. They are not properties of some substance distinct from the body, such as a Platonic soul. Nonetheless Aristotle observes that

the student of nature and the dialectician would define each of these [affections or mental states] differently, *e.g.* what anger is. For the latter would define it as a desire for retaliation or something of the sort, the former as the boiling of the blood and hot stuff round the heart. Of these, the one gives the matter, the other the form. For this is the principle of the thing but it must be in a matter of such and such a kind if it is to be (403^a29-403^b1).

The student of nature would define 'anger' purely physiologically. Though "giving the matter" is important, according to Aristotle *only* giving the matter of a phenomenon inhibits understanding, because the phenomenon includes a component not reducible to matter. Conversely the dialectician would define 'anger' in terms of other mental states, *e.g.*, desire. But, since anger "must be in a matter of such and such a kind," no full account can disregard material composition altogether. The functionalist would concur. Though anger would play a causal role relative to other mental states, it would also be causally related to sensory input and behavioral output.

One might object that, when in this passage Aristotle references the heart, he is referencing a specific type of matter and not something merely in virtue of its functional role. Likewise, when Aristotle says that anger "must be in a matter of such and such a kind," he means that the particular type of matter is essential to a mental state. Thus Aristotle seems to focus on the matter itself rather than its functional organization.

There are two ways to defend Aristotle against this objection. First, Aristotle might be understanding the heart as that which, when heated, causes anger. Thus he would understand the heart functionally. He understands the eye as such: "The eye is matter for sight, and if this fails it is no longer an eye, except homonymously" (*DA* 412^b21-2). An eye *is* an eye because it functions to see, and not because it is composed of one type of matter as opposed to another.⁵ Second, when Aristotle says that anger

⁵ Two passages in the *Metaphysics* support this interpretation: (i), "each thing must be referred to by naming its form, and as having form, but never by naming its material aspect as such"

“must be in a matter of such and such a kind,” the “such and such a kind” might itself refer to functional organization. Anger need not essentially be “in” the actual material of a human being; rather, the *kind* of matter in which anger must exist would be a kind *with functional units, like* a heart. The *De Anima* supports this interpretation. Speaking of bodies with souls, *i.e.*, which are alive, Aristotle writes: “Whatever has organs will be a body of this kind” (412^a28). Having organs makes a body potentially a living body. Having organs such as a heart makes a body potentially a body that can experience anger. Now organs are themselves functional units of a body. They are anything that can be *organized* to play a functional role. Hearts and eyes are organs, and each can be defined in terms of function. Aristotle writes further: “Even the parts of plants are organs, although extremely simple ones, *e.g.* the leaf is a covering for the pod, and the pod for the fruit; while roots are analogous to the mouth, for both take in food” (412^a28-^b2). Here Aristotle defines each organ in terms of function: the leaf in terms of covering the pod, and the roots, like an animal mouth, in terms of taking in food. Organs, therefore, *are* organs in virtue of their functional role in a body. A body, therefore, experiences anger in virtue of having a certain mental state that is causally related to other mental states, sensory inputs and behavioral outputs; and such inputs and outputs *are* inputs and outputs in virtue of being causally related to organs. Hence, for both Aristotle and functionalists, mental states can be defined in terms of functional role independent of the type of matter that comprises the system in which they occur.

(b) Functionalism licenses mentalistic terms.

Does Aristotle’s view share this second feature of functionalism also? Recall that Aristotle defines ‘anger’ in terms of ‘desire’. To see how liberally Aristotle uses mentalistic terms, consider first what he means by ‘soul’. Aristotle seems to treat soul as function: “[I]f an instrument, *e.g.* an axe, were a natural body, then its substance would be what it is to be an axe, and this would be its soul; if this were removed it would no longer be an axe, except homonymously” (*DA* 412^b12-5). ‘Instrument’ is an alternative

(1035^a7-9). One must refer to an object by naming its form, *i.e.*, its structure or organization, and not by naming the particular matter that comprises it. (*ii*), “we have stated that in the formula of the substance the material parts will not be present” (1037^a23). Of course material parts will always be present in hearts and eyes. But in stating their formula—in defining what it is to be a heart or eye—one need not mention type of matter.

translation for 'ὄργανον', elsewhere rendered 'organ'. So, were an organ not merely a functional unit but a whole body, then what it is to be that organ would be its soul. What it is to be an axe—*i.e.*, to be something that cuts—would be the soul of the axe, without which the axe is only an axe in name. Hence a body's soul is something like its function. Aristotle continues: "But as it is it is an axe; for it is not of this kind of body that the soul is 'what it is for it to be what it was' and the principle, but of a certain kind of natural body having within itself a source of movement and rest" (412^b15-7). What it is to be an axe is to cut; this, were it living, would be its soul. What it is to be living is to be a certain kind of natural body having within itself a source of movement and rest; this is its soul. If a natural body functions to move and rest, then it is alive and has a soul. The soul, therefore, would be the totality of the functions of life, and *having* a soul would be *having* these functions. Further, the soul would be the principle of those functions. Principles on Aristotle's view are explanatory. That something has a soul explains why it feeds itself, grows and decays, in the case of animals locomotes, and in the case of human beings thinks.

Alternatively, the soul is the actuality of a living body. Cutting is the actuality of an axe: it is what an axe does insofar as it is actually an axe and not one merely in name. Similarly having a soul is the actuality of a living body: it is what a living body has insofar as it is actually a living body and not one merely in name. Now on Aristotle's view calling the soul the "form" and "actuality" of a living body are equivalent.⁶ Both the form and actuality of a thing are, according to Aristotle, what it is for a thing to be the *kind* of thing that it is. And both, according to him, refer to function: an axe is an axe in virtue of its functioning to cut. Finally, function depends upon structure or organization of matter: only certain structures can cut; only matter formed or actualized in certain ways can be an axe. Similarly only a natural body with organs—one structured or organized with internal functional units—can be alive.

⁶ For Aristotle, all ordinary objects consist of matter in some particular form. Moreover, the matter of the human body—skin, bones, organs—when actually alive has the form of being alive, and Aristotle identifies this form as its soul. Thus for a living body actually to be a living body and not one merely in name, it must have a soul. Likewise this very same body, when not actually but only *potentially* alive (say, when a heart stops), would not have a soul; it would be the matter of a living body only.

Now, we can investigate whether Aristotle refers to human souls in mentalistic terms. In *DA* 1.4, Aristotle writes:

We say that the soul is grieved, rejoices, is confident, and afraid, and again is angry, perceives, and thinks... For it is surely better not to say that the soul pities, learns, or thinks, but that the man does these with his soul; and this not because the movement takes place in it, but because sometimes it reaches as far as it or at other times comes from it; e.g. perception starts from particular things, while recollection starts from the soul itself and extends to movements or persistent states in the sense-organs (408^a35-^b18).

Aristotle notes that we speak of the soul as engaging in many mental activities. Rather than admonishing such talk altogether, Aristotle observes that we do not talk in the correct way. The soul, *qua* form or actuality of a living body, is not the subject of mental states. The human being is. For a human being to have the mental state of grief is for the human being to be grieved *with* her soul. She/he must be in a particular mental state relative to her/his form as a human being. This is because, Aristotle explains, the grieving can have as input something from perception or stored in the soul as memory. It can have as output movement, *i.e.*, a form of behavior. Regardless of the mechanics of Aristotelian perception and recollection, Aristotle, like foundationalists, embraces mentalistic terms.⁷

(c) Functionalism permits (though does not require) ontological monism.

Does Aristotle's view share this third feature of functionalism? Aristotle's philosophy of mind generally⁸ does permit ontological monism. Recall that for Aristotle "all the affections of the soul involve the body" or "are principles involving matter." And, just as modern functionalists formulate their views partially to eliminate the need to posit a Cartesian

⁷ Elsewhere in the *De Anima* Aristotle writes: "It seems that all the affections of the soul involve the body—passion, gentleness, fear, pity, confidence, and, further, joy and both loving and hating; for at the same time as these the body is affected in a certain way" (403^a16-10). Simultaneous to the soul's experiencing these mental phenomena, the body is affected in a certain way. Rather than eliminating the mental in terms of the physical body, Aristotle notes that they are concurrent; because the former *involves* the latter, he ultimately concludes that the former are functions of the latter. Hence we see again that, like functionalists, Aristotle uses mentalistic terms.

⁸ The active intellect, a capacity of the soul, is nonphysical. I address this in the final section.

soul, so Aristotle formulates his partially to eliminate the need to posit a Platonic soul separate from the body.⁹

Remembering that the soul is the form of a living body, we can understand its relation to the body in terms of Aristotle's discussion in the *Metaphysics* of the relation between matter and form generally: "The proximate matter and the form are one and the same thing, the one potentially, the other actually. Therefore to ask the cause of their being one is like asking the cause of unity in general for each thing is a unity" (1045^b17-21). Now the proximate matter is "proximate," because it is the "closest" to the concrete individual, while the "ultimate" matter just is the matter fully formed. For Aristotle, the proximate and ultimate are the same substance, the first potentially formed matter, the second actually formed matter. A body with organs that is nonetheless not living is proximate matter; it is potentially alive. When it has a soul it just *is* alive; it *is* actually what the body is only potentially. Hence the soul is not a substance separate from the body but the form, actuality, or ultimate matter of the body.

Prior to this, Aristotle explains the relation between form and matter in terms of a syllable and its elements:

[T]he syllable is not its elements, *ba* is not the same as *b* and *a*, nor is flesh fire and earth; for when they are dissolved the whole, *i.e.* the flesh and the syllable, no longer exist, but the elements of the syllable exist, and so do fire and flesh. The syllable, then, is something—not only its elements (the vowel and the consonant) but also something else.... Since, then, that something must be either an element or composed of elements, if it is an element the same argument will again apply; for flesh will consist of this and fire and earth and something still further, so that the process will go on to infinity; while if it will be a compound not of one but of many..., so that again in this case we can use the same argument.... But it would seem that this is something, and not an element, and that is the cause which makes *this* thing flesh and *that* a syllable.... And this is the substance of each thing (1041^b13-29).¹⁰

⁹ See note 1.

¹⁰ Here, as in notes 2 and 5 and above, I understand substance as matter in a particular form or structure; the substance of the syllable is its elements, 'b' and 'a', structured so that the latter is suffixed to the former.

The syllable is not only 'b' and 'a' but also something else. This something else cannot be another letter but the cause of what *makes* its letters into the syllable. The syllable then would be something like 'b' and 'a' formed according to the organizational rule "'b' before 'a'." The syllable supervenes on its elements; it is not made of *other* elements but is merely a *function* of the elements of which it is composed. Likewise the soul supervenes on its elements (the parts of a living body); it is not made of other elements (*e.g.*, a Platonic soul¹¹) but is merely a *function* of the elements of which it is composed (*i.e.*, a natural body with organs). And just as the syllable is not *reducible* to its elements—'ba' is not 'b' and 'a'—neither is the soul reducible to its. The soul is the form of a living body, not its matter.

Thus Aristotle is generally an antireductionist physicalist. With the exception of the active intellect, considered in the final section of this paper, the only ontology that Aristotle countenances, at least in the sublunary realm, is one of ordinary matter. Nonetheless souls, like syllables, are not reducible just to that matter; they are matter in particular forms. Hence Aristotle, like most functionalists, (more or less) permits ontological monism.

(d) Functionalism does not force one to disregard type of material altogether.

Finally, does Aristotle's view share this fourth feature? Aristotle, like Putnam, can be understood as insisting that only matter with the right functional structure can be alive and so have mental states. But Aristotle, like Dennett, argues that functionalism can make demands on the very *type* of matter that can instantiate mental states. Consider *Metaph* 7.11: "Therefore to bring all things thus to Forms and to eliminate the matter is useless labor; some things surely are a particular form in a particular matter, or particular things in a particular state" (1036^b22). Some things are the particular form that they are at least partially in virtue of being in a particular matter. This interpretation is supported later in the *Metaphysics*: "[F]rom wood may be made both a chest and a bed. But *some* different things must have their matter different, *e.g.* a saw could not be made of wood, nor is this in the power of the moving cause; for it could not make a saw of wool or of wood" (1044^a25-9). No moving, or efficient, cause,

¹¹ See note 1.

according to Aristotle, can make wool or wood into a saw. Type of matter can sometimes constrain type of form or functional organization.

Nevertheless Aristotle seems not to apply this reasoning to his views on the soul. He offers a passage that *prima facie* appears to contradict my interpretation: "[T]he form of a man is always found in flesh and bones and parts of this kind; are these then also parts of the form and the formula? No, they are matter" (1036^b3-5). But matter's not being "part of the form"—or part of the *definition* of the thing—and the form's being able to be instantiated in only certain types of matter, are distinct. The form of an axe is that it be able to cut in a certain way. It is not part of its *definition* that it cannot be made of wool or wood. It is just that *for* something to be able to cut in that way, it *cannot* be made of wool or wood. Similarly that flesh and bones are not part of the *definition* of a human being does not entail that human beings *can* be made of other types of matter. On the contrary, Aristotle can be interpreted as holding that the human soul is the form of a human body that, *qua* human, can *only* be made of flesh and bones. This parallels Dennett's functionalist view, cited at the end of the first section, that it is likely that human mental states can only be instantiated in human brains. Hence Aristotle, like a modern functionalist, does not force one to disregard type of matter altogether.

II. Objections

III.

Let me consider objections to my claim that Aristotle's philosophy of mind is functionalist. In doing so, I hope to strengthen my case that he is.

(a) Aristotle describes perception in nonfunctional terms.

This objection is advanced partially by Nelson (1990) and fully by Burnyeat (1992), both citing the following text from the *De Anima*: "[E]ven that which sees is in a way coloured; for each sense-organ is receptive of the object of perception without its matter. That is why perceptions and imaginings remain in the sense-organs even when the objects of perception are gone" (425^b23-5). Nelson interprets this passage as meaning that having the mental state, *e.g.*, of seeing red, is not having one's eye causally related to red stimulations, other mental states, and certain behavior. It is having one's eye *turn* red. Seeing red is then not the result of matter's being functionally organized but intrinsically altered.

Burnyeat agrees that the *De Anima* passage can thus be read but suggests an alternative reading truer to Aristotle's intent. To prime this alternative, Burnyeat notes that elsewhere in the *De Anima* Aristotle writes that there are two types of actualization, only the first of which involves one thing's being altered into another:

But we must make distinctions concerning potentiality and actuality.... For there are knowers in that we should speak of a man as a knower because man is one of those who are knowers and have knowledge; then there are knowers in that we speak straightaway of the man who has knowledge of grammar as a knower.... There is thirdly the man who is already contemplating, the man who is actually and in the proper sense knowing this particular A. Thus, both the first two, being potential knowers, become actual knowers, but the one by being altered through learning and frequent changes from an opposite disposition, the other by passing in another way from the state of having arithmetical or grammatical knowledge without exercising it to its exercise (*DA* 417^a20-^b1).

What does this have to do with *DA* 425^b23-5? According to Burnyeat, when Aristotle there says that an eye which sees is in a way colored, Aristotle can be taken *not* to mean that it is *altered* into or *becomes* something colored, as Nelson contends, but instead to mean that an eye's seeing red is like a grammarian's *engaging in* grammatical knowledge. The grammarian does not *become* grammatical but is a grammarian—already capable of studying grammar—who comes to *exercise* her capability. Likewise the eye would not *become* colored; it would already be capable of perceiving color and come to *exercise* its capability. But, Burnyeat argues, if the eye does *not* become red, then, in virtue of not being altered, the matter in the eye would not change at all. It must already have *been* red, as a grammarian is already grammatical. Burnyeat contends: "One might say that the physical material of animal bodies in Aristotle's world is already pregnant with consciousness, needing only to be awakened to red" (1992, p. 19). Finally, because Burnyeat takes Aristotle to allow perception without change in the body, Burnyeat concludes that perception cannot be a function of the body. Aristotle's philosophy of mind therefore cannot be functionalist.

Thus, if one interprets *DA* 425^b23-5 as Nelson does, then seeing red involves one's eye's *turning* red, and this is inconsistent with my thesis that Aristotle's philosophy of mind is functionalist. Similarly, if one interprets the passage, as Burnyeat does, then seeing red involves *no* change in the body at all, and this too is inconsistent with my thesis. On *either* read, then, Aristotle cannot be a functionalist.

Much can be said in response to Burnyeat and ultimately Nelson. Let me begin with Burnyeat. First, that Aristotle's physics might allow matter to be "pregnant with consciousness" does not *per se* disqualify his philosophy of mind. Matter, "pregnant" or otherwise, can still be functionally organized, the result of which can still be mental states. I have already quoted passages where Aristotle commits himself to mental phenomena's involving matter. Others include:

It appears that in most cases the soul is not affected nor does it act apart from the body, *e.g.* in being angry, being confident, wanting, and perceiving in general; although thinking looks like being peculiar to the soul. But if this too is a form of imagination [or mental representation] or does not exist apart from imagination, it would not be possible even for this to exist apart from the body (403^a5-10).

No mental phenomena, probably not even thinking, exist unless the body is affected.¹² Aristotle even says: "Hence too we should not ask whether the soul and body are one, any more than whether the wax and the impression are one, or in general whether the matter of each thing and that of which it is the matter are one" (*DA* 412^b4-7). So, for every passage that Burnyeat can interpret as suggesting that only the soul is affected without the body's being altered, we can interpret the passage as talking about both, for the soul and body are one.

What then is there to say to Nelson? If the matter of the eye is *involved* in seeing red, then we still cannot agree with Nelson that it *becomes* red, lest we admit that Aristotle's philosophy of mind is not functionalist. It is therefore necessary to find a way in which the matter of the eye would not be altered but nevertheless be affected.

¹² In fact, for Aristotle, no mental phenomena at all—not even abstract thinking—is possible without the body's being affected: at *DA* 431^b2, Aristotle denies that thinking can exist apart from mental representations. See note 12.

Let me suggest this. When Aristotle writes that "each sense-organ is receptive of the object of perception without its matter," let us take him taken to mean that its matter, *qua* matter, stays the same; the eye does not get colored red. Rather, the internal *organization* of the eye's matter changes; the eye's form changes. Now changing of the eye's internal organization need not amount to an alteration, if the *form* of what it is to be an eye does not change. To parallel Aristotle's grammarian, the eye is already capable of perceiving red, merely in virtue of being an eye. All that is necessary is that its matter, *within the constraints of the form of an eye*, be so arranged as to instantiate the functional role of seeing red. Seeing red is then not identified with the matter of the eye's *being* red but with that matter's being causally related to red stimulation, other mental states, and behavior, just as the functionalist requires.

Moreover, this interpretation of how perception works from the perspective of the perceiver mirrors what Aristotle says about how perception works from the perspective of the perceived: "In general, with regard to all sense-perception, we must take it that the sense is that which can receive perceptible forms without their matter, as wax receives the imprint of the ring without the iron or gold, and it takes the imprint which is of gold or bronze, but not *qua* gold or bronze" (424^a18-22). When an object is perceived, Aristotle explains, only the *object's* form, and not its matter, is perceived. On my view, when an eye is perceiving an object, Aristotle would likewise have it that only the *eye's* form, and not its matter, is affected. Thus only the internal *organization* of the eye is affected, *though not to the extent that it would no longer be an eye*. The actual material parts retain their material composition. How these individual parts relate to each other—how the totality is formed—is the only thing affected. And because the effect is *not* so great that the eye ceases being an eye, the effect is not an alteration.

Hence the first objection has been met. On the one hand, Burnyeat neither shows that matter, "pregnant" or otherwise, cannot be functionally organized to produce mental phenomena, nor countenances clear instances of Aristotle's claiming that mental phenomena involve matter. On the other hand, Nelson fails to consider alternative interpretations of the text—including one paralleling what Aristotle says elsewhere, and so more

plausible than the one that Nelson himself offers. Aristotle's account of perception is consistent with functionalism.

(b) For Aristotle, the soul is not merely a function of a body's being alive, but also what makes it live. Thus the soul is the formal and efficient cause of a body's being a particular living thing—and this is inconsistent with functionalism.

Granger (1990) and Cohen (1992) independently advance this second objection. Granger and Cohen are right that, for Aristotle, the soul is a formal and efficient cause. Moreover, in *DA* 2.4 Aristotle claims that the soul is a *final* cause as well.¹³ Now the soul's being a formal cause, as we saw in Part II, is congenial to functionalism. Its being a final cause is at least consistent. The soul of a human being, as her form or actuality, is that for the sake of which a human being, e.g., eats: the end of nutrition is becoming or maintaining one's form as a human being.

Is its being an efficient cause consistent with functionalism? This is where Granger and Cohen dig in their heels. Granger makes the case as follows. According to Aristotle, the soul is the functions of, or properties causally arising from, a living body. But, according to Aristotle, the soul is also the moving force of those functions or properties; this is what its being an *efficient* cause means. Now, according to Granger, "*things*, or the *subjects of properties*, are [efficient] causal agents. A billiard-ball, not the property of striking, strikes another billiard-ball" (1990, p. 39). The property of striking is not the efficient cause of something's *being* struck;

¹³ According to Aristotle, the notion of cause covers four sometimes-distinct concepts. The *material* cause of a statue is the matter from which it is made, the *formal* cause the statue's structure or organization, the *efficient* cause the sculptor who made the statue, and the *final* cause the statue's purpose. When Aristotle says that the soul is a formal cause, this seems to mean that it is the structure or organization that a living body takes. When he says that it is an efficient cause, this seems to mean that it is what makes the body live. When Aristotle says that the soul is a final cause, this seems to mean that it is the purpose of its living, in the sense of being the goal toward which a living body strives.

It might seem that regarding the soul as an efficient and final cause can in a way be reduced to regarding it as a formal cause. The efficient cause, as the moving force behind its living, and the final cause, as the purpose of its living, are in some sense close to the general structure that a living body must take. If a living body is alive, then its general structure (formal cause) might be seen as tantamount to its striving to stay alive (efficient cause) as well as providing the purpose for its being alive in the sense that one goal of life is to stay alive (final cause). Nonetheless Aristotle's four causes, relating to the soul or otherwise, are in principle distinguishable.

the billiard-ball, which is a 'thing' or independent object, is. Thus, for the soul to be an efficient cause, it too would have to be an independent object.

Now, Granger contends, if having a soul is having certain functions (because a formal cause) *and* having a certain object (because an efficient cause), then that object, *as* the efficient cause of those functions, would have to be substantially distinct from them. As their efficient cause, the object would organize the body's *matter* in such a way that its functions would supervene on its matter. The object would then be a substance *distinct* from the body's matter and its functions. Granger therefore calls Aristotle a 'dualist' and what for Aristotle is the soul a 'power-thing'. On his interpretation of Aristotle, the soul is the functions, properties, or "power" supervening on matter *and* a "thing" (or object) organizing the matter so as *to* function, have its properties, or exhibit its power. Yet, for functionalists, mental phenomena just *are* functions, or causally arising properties, and *not* objects. Consequently, Granger concludes, Aristotle's notion of soul is inconsistent with functionalism. Cohen employs similar reasoning to conclude the same.

One response to Granger and Cohen is to question their interpretation of Aristotle. It seems correct that Aristotle wants the soul to be the functions of a living body. It also seems correct that the soul, *qua* efficient cause of these functions, would have to be more than merely these functions; it would have to explain how these functions actualize. But we already saw that the soul is the principle or explanation of the functions of a living body. The soul, in its capacity as efficient cause, could be the principle or explanation of a living body's self-nutrition, growth and decay, locomotion, and thought. Now the soul as efficient cause need only be distinguishable from its functions in principle. Recall how the syllable 'ba' is more than merely 'b' and 'a'; the syllable is not reducible to its elements. But the syllable is not a substance *separate* from its elements. The syllable is distinguishable from its elements in principle, not in substance. Thus Aristotle is a nonreductive physicalist rather than a dualist concerning syllables and their letters. Similarly that for Aristotle the soul as efficient cause is distinguishable from its matter in principle does not show that he is a dualist concerning souls and their bodies. Concerning these Aristotle is a nonreductive physicalist rather than a dualist as well. So Granger and Cohen's objection need not stick.

There is another response to their objection: even if Granger and Cohen are correct, and Aristotle *is* a dualist, Aristotle can *still* be a functionalist. Dualism need not be inconsistent with functionalism. Because this second response also responds to the third objection to Aristotle's philosophy of mind being functionalist, consider the third objection directly.

(c) Aristotle is a dualist, and dualism is inconsistent with functionalism.

Wilkes (1992) observes that in *DA* 3.5 Aristotle says that the active intellect, that capacity of the soul responsible for abstract thinking, "alone is immortal and eternal" (430^a24). It is immortal and eternal, because it is not, like the body, made of matter. The active intellect does not have an organ (429^a26-7). And so *DA* 3.5 commits Aristotle to dualism after all. Further, Wilkes worries that, because functionalism defines mental states in terms of their causal relations not only to other mental states but also sensory stimulations and behavioral outputs, for functionalism mental states necessarily involve the body. The active intellect, since it is nonphysical, does not involve the body. Hence, Wilkes contends, Aristotle's philosophy of mind cannot be functionalist.

Now, first, Wilkes begs the question. Something's being nonphysical does not entail its not *involving* the body. It merely entails its not being *composed* of the same thing *as* the body. Only a physicalist would insist that the active intellect need an organ. For only a physicalist would insist that abstract thoughts need instantiation in an organ to relate causally to sensory stimulations and behavioral outputs. Dualists maintain that the physical and nonphysical can interact. Otherwise they would claim that a human being has no control over her/his body. That such interaction is impossible is an objection from physicalism, the very position from which Wilkes argues.

Second, her objection is irrelevant. Functionalists need not be physicalists. Functionalism permits but does not require physicalism or any other ontological monism. As Putnam observes (see Part I), it is not contradictory to maintain that a system consisting of something physical and something nonphysical could be functionally organized. *Should* one accept dualism, then one would have no reason to believe that abstract thinking could not be causally related to sensory stimulations and

behavioral outputs.¹⁴ Wilkes has shown that Aristotle is not a physicalist functionalist rather than that he is not a functionalist *tout court*.¹⁵

The second and third objections have thus been met. The soul's being an efficient cause is not inconsistent with functionalism. First, the soul, *qua* efficient cause, need not be a nonphysical substance. Second, even if it is nonphysical, and even though Aristotle's conception of the active intellect seems to commit him to dualism, dualism is not inconsistent with functionalism. I therefore conclude that Aristotle's philosophy of mind is functionalist.¹⁶

Bibliography

¹⁴ According to Aristotle, abstract thinking *does* involve the body: "That which thinks, therefore, thinks the forms in images [or representations]" (*DA* 431^b2). And representations involve the body. For

the objects of thought are included among the forms which are objects of perception; both those that are spoken of as in abstraction and those which are dispositions and affections of objects of perception. And for this reason unless one perceived things one would not learn or understand anything (432^a4-8).

All thinking, even abstract thinking, involves perception. And in the *De Anima* Aristotle describes perception as involving the body.

For textual support for this last point, see, e.g., *DA* 1.1, 403^a5-10, quoted above, and *DA* 2.2. See also Kahn, who argues that, for Aristotle, insofar as all thinking involves representations, it involves *both* the capacities of intellection *and* perception: "It is not the disembodied principle of *nous* [intellect] that requires phantasms [representations]; it is our use of *nous*, the penetration of *nous* into our embodied activity as sentient animals, which must take place by means of the phantasms, *i.e.*, through the neurophysiological mechanism of sense and the mental imagery of conscious thought" (Kahn 1992, pp. 362-3). So both abstract and nonabstract thinking involve perception. And perceiving both mental representations and external objects requires a neurophysiological mechanism. In short, both abstract and nonabstract thinking involve the body.

¹⁵ Both Caston (1997, 1998) and Wedin (1988) try to reconcile *DA* 3.5 with physicalism by reading Aristotle as an emergentist. Caston interprets Aristotle's claim that the active intellect has no organ to mean that the active intellect emerges from states of lower-level organs, while Wedin interprets it to mean that the active intellect emerges from the body in total. Both interpretations are consistent with Aristotle's being a functionalist. Sisko (2000) presents a strong argument for interpreting Aristotle not as an emergentist and but as a dualist. Yet, even if Sisko is correct, this shows only that Aristotle is not a physicalist—for reasons just presented, not that he is not a functionalist.

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Dr. Nathaniel Goldberg
Department of Philosophy
Ohio University
Ellis Hall 202
Athens, Ohio 45701
United States