

COMMENTARY ON CHARLES

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ABSTRACT

In this paper, I argue that Aristotle is only committed to a moderate form of hylomorphism, rather than the stronger form advocated by Charles. On the moderate view, psychological states as a whole are inseparable, both in existence and in thought, from their formal and material components, while the components may be separable in some way from each other and from the state as whole. The strong view adds the claim that these components cannot be separated from one another, especially in thought. But moderate hylomorphism is all that is required to account for the evidence Charles brings forward—the contrast between mathematics and natural philosophy, the distinction between determinables and determinates, and Aristotle’s example of the snub nose—and it is the one we should favor, given that it is the more economical hypothesis and preserves the explanatory power of Aristotle’s account.

Sometimes one hears an analysis so clear and incisive that it just seems to slice right through a Gordian knot. A simple distinction, followed through unswervingly, makes the solution suddenly appear evident, without having to unravel further the tangled skein of arguments that has accumulated over the years. David Charles aims to do exactly that in “Aristotle’s Psychological Theory.” In a bold, new interpretation of Aristotle’s hylomorphism, he argues that all the parties involved in the recent debate over “literalism” and “spiritualism” are committed—despite their protestations to the contrary—to what Charles calls “Cartesian assumptions,” assumptions which, he argues, Aristotle does not share. Hylomorphism, on Charles’ view, is a much more radical alternative to the post-Cartesian tradition than was previously appreciated. It constitutes a challenge to all current forms of materialism, reductive and nonreductive alike, as much as to past dualisms. If Charles’ Aristotle is right, neither the psychological nor the physical aspects of states like perceiving and desiring can be understood apart from one another—the definition of each makes essential reference to the other and cannot be picked out as such independently. They are so closely interwoven that neither domain can be regarded as autonomous. Even if Charles is wrong about Aristotle, as I shall argue, the novelty and interest of the resulting view makes his reading worthwhile. If it goes wrong, it will be instructive to find out exactly where.

Charles builds his case on Aristotle’s programmatic discussion in *De Anima* I 1 on how to define psychological states like anger. The upshot, according to Charles, is that

[Anger], like many mental activities, is inextricably psycho-physical, non-decomposable into two separate types of activity, one purely psychological, the other purely physical. (p. 1)

The first part of this claim, that anger is essentially a psycho-physical state, is uncontroversial. It is clearly Aristotle’s view and would be accepted, on one construal or another, by *all* parties to the debate. What matters is Charles’ subsequent claim of non-decomposability:

NON-DECOMPOSABILITY: Anger cannot be decomposed in such a way that any of its constituent parts is purely psychological or purely physical.

To say that a type of state¹ is “purely” physical or “purely psychological” is to say something about how it is defined or essentially characterized as such:²

A state is *purely psychological* just in case it can be “defined without essential reference to any grounding physical process.” (p. 2)

A state is *purely physical* just in case it can be “defined without essential reference to anything psychological.” (p. 2)

Everything hinges on these distinctions and their implications.

The mistake others make, according to Charles, is to cling to “purity,” to assume that the components must be either purely psychological (if psychological) or purely physical (if physical). The whole point of Aristotle’s hylomorphism, Charles believes, is that this is a *false dichotomy*—these two categories are not jointly exhaustive. To think that they are is to be committed to what he regards as a “Cartesian Assumption”:

CA. “All the types of process or activity involved must be either purely psychological or purely physical (or else a combination of one purely physical and another purely psychological type of process or activity).” (p. 3)

According to Charles, both spiritualists and literalists are committed to (CA). Their dispute is instead a more local one about how perception is “decomposed” into pure states. While both parties accept the further Cartesian assumption that

CA1. “Perception and other such activities involve a purely psychological activity type.” (p. 3),

¹ For convenience, I will use ‘state’ indifferently to cover processes, activities, or conditions a substance has or undergoes. I do not believe that anything here turns on the differences.

² These qualifications are important, since Charles allows that one might be able to *pick out* or *refer* to the state using other descriptions.

they differ over the question of whether a purely physical type must also be involved. The following Cartesian Assumption³ is accepted by non-reductive materialist interpreters and rejected by spiritualist ones:

CA2. Perception and other such activities involve a purely physical process type as well.

In fact, their dispute is even narrower than this. If spiritualists like Burnyeat go in for Cartesian assumptions at all—something they might well contest—they would reject (CA2) *only for cognitive states* like perception and understanding. With regard to anger, desire, and other passions, which for Charles are the central cases, spiritualists would accept (CA2) as well. There thus appears to be extensive agreement between spiritualists and literalists on this issue.

Charles, in contrast, rejects both (CA1) and (CA2), along with the Cartesian dichotomy (CA) that motivates them, and offers non-decomposability in their place. I will argue that we should resist these moves. After examining and rejecting an extreme form of non-decomposability (Section I), I will propose an alternative and more moderate form of hylomorphism to serve as a foil to the stronger form of hylomorphism Charles favors (Section II). I will then look more closely at the question of purity (Section III) and finish by considering Charles' appeal to the determinable-determinate relation and to Aristotle's example of the snub (Section IV).

I. Decomposability

To help us get a better idea of what is at stake in these theses, consider the following quick argument for Charles' rejection of (CA1) and (CA2):

The Cartesian assumptions are mistaken because psychological states are not decomposable at all; *a fortiori*, they are not decomposable into distinct components which are either purely psychological or purely physical.

On this view, purity is a fiction because decomposability is a fiction. In reality, there aren't two components at all; there is only the psychological state as a whole. To speak as if there were two components is thus misleading, as it only encourages us to think of them as separable from each other and so pure. But the matter and form of a psychological state cannot be isolated from each other *even in thought*: they form a single, indissoluble whole.

³ Charles does not call this a Cartesian assumption, but it is not unreasonable to, since in his view it shares the same flaws as (CA1).

A great deal hinges here on what is meant by 'component.' Distinct processes or activities, presumably, are meant to be ruled out: a state like anger cannot consist of distinct *token events*, which are either purely psychological or purely physical. Charles certainly denies that there are two distinct processes for Aristotle (pp. 19, 27): desiring retaliation on his view is "identical" to the blood's boiling (p. 24).

So understood, though, the quick argument is not enough for Charles' purposes, since many of the nonreductive materialist interpretations he opposes would agree that psychological states do not have components in this sense. They maintain that psychological states like anger are a *single token event* that instantiates *two distinct types* (or properties or "aspects"), one psychological and the other physical; or, shifting to the formal mode, that all such states are essentially characterized by *two descriptions* corresponding to these types.⁴ But if so, such states are decomposable; and the definition of such states will literally have two components, *viz.*, two descriptions of the state, one psychological and the other physical. To rule these rival views out, then, the quick argument would need to deny that psychological states can be decomposed in either of these ways as well. Call this rejection of dualism of any kind, "EXTREME HYLOMORPHISM." If there is no dualism of types or descriptions, *a fortiori* there are no pure types or pure descriptions either. Purity is impossible without dualism of some kind.

Extreme hylomorphism plainly goes too far. In fact, it is unclear whether it is even coherent as a form of hylomorphism. In so far as Aristotle distinguishes between matter and form and assigns them distinct and contrasting roles in his theory, Aristotle is inevitably committed to a dualism of *some* sort, presupposing some general distinction between two kinds of tokens or types or descriptions of these states. In fact, it is precisely because he draws such a distinction that the psychological, and form in general, is irreducible to matter.

The discussion of definitions in *De Anima* I 1 reflects this antireductive stance. Aristotle criticizes his predecessors, Pre-Socratic and Platonist alike, for having sought the essence of things exclusively in terms of matter or in terms of form:

⁴ It hardly needs saying that such views must allow that states will instantiate *more than two* types or satisfy *more than two* descriptions, even when characterized essentially: Aristotle's definition schema at *An.* I 1, 403a25–27 also includes reference to the efficient and final causes as well ("by this and for that," ὑπὸ τοῦδε ἐνεκα τοῦδε). But just as Aristotle's discussion leaves these aside and concentrates on the material and formal causes, so I will generally omit references to the other two.

Both the natural [philosopher] and the analytic [philosopher] would define each of these [states] differently, for example, what anger is. For the second [philosopher], it is a desire for retaliation or something similar, while for the first it is a boiling of the blood or of the heat around the heart. Of the two, one explains it in terms of the matter, the other in terms of the form and account. For while *that* is the formula of the object, it must be in *this* kind of matter, if it is to be all.⁵

The specific details of these definitions are not at issue—Aristotle uses them only for the sake of having a concrete example. His real target is their general form. Both make the same mistake, despite their very different orientations: their definitions are one-sided, capturing only one of the aspects essential to the subject matter in question. An adequate definition, Aristotle immediately goes on to suggest, will be one compounded “from both” (ἐξ ἀμφοῖν):

Which of these, then, is the natural [philosopher]? Is it the one who is concerned with matter while ignoring the account, or the one concerned with the account exclusively? Or rather the one who works from both?⁶

To stay with Aristotle’s example, anger is *both* a desire for revenge *and* a boiling of the blood. The type of definition Aristotle favors for psychological states, then, is straightforwardly decomposable, with both formal and material descriptions of the object, and we should regard the essence of such states as correspondingly decomposable into types. Aristotle cannot accept extreme hylomorphism.

When Charles objects to decomposability, though, he needn’t be rejecting decomposability as such. He might only be denying that psychological states like anger can be decomposed into distinct events or, more strongly, that while they are decomposable into distinct types, they cannot be decomposed into *purely* physical and psychological types. But if only certain kinds of decomposition are objectionable—namely, decomposition into *pure* components—then we need some other reason for rejecting pure components. The quick argument is too quick.

Decomposability is not the issue, then, but purity itself. It is not a question of whether psychological states or their definitions consist of two sorts

⁵ *An.* I 1, 403a29–b3: διαφερόντως δ’ ἂν ὀρίσαιντο ὁ φυσικός τε καὶ ὁ διαλεκτικός ἕκαστον αὐτῶν, οἷον ὀργή τί ἐστιν· ὁ μὲν γὰρ ὀρεξιν ἀντιληψέως ἢ τι τοιοῦτον, ὁ δὲ ζέειν τοῦ περὶ καρδίαν αἵματος ἢ θερμοῦ. τούτων δὲ ὁ μὲν τὴν ὕλην ἀποδίδωσιν, ὁ δὲ τὸ εἶδος καὶ τὸν λόγον ὁ μὲν γὰρ λόγος ὄδε τοῦ πράγματος, ἀνάγκη δ’ εἶναι τούτων ἐν ὕλῃ τοιαδί, εἰ ἔσται. Unless otherwise indicated, I follow Jannone’s Budé text. In the present passage, I read ὄδε with X and W, rather than εἶδος a second time, at 403b2.

⁶ *An.* I 1, 403b7–9: τίς οὖν ὁ φυσικός τούτων; πότερον ὁ περὶ τὴν ὕλην, τὸν δὲ λόγον ἀγνοῶν, ἢ ὁ περὶ τὸν λόγον μόνον; ἢ μᾶλλον ὁ ἐξ ἀμφοῖν;

of thing or just one—every interpretation of Aristotle must accept a dualism at some level—but whether these two types or descriptions are *independent* of one another and if so, in which ways. Different kinds of hylomorphism will result depending on which independence claims one accepts or rejects.

II. Moderate vs. Strong Hylomorphism

A key part of Charles’ argument against purity rests on the contrast Aristotle draws between psychological states and mathematical entities at the end of his discussion in *De Anima* I 1:

But to return to where the discussion left off. We were saying that the states of the soul are not separable from the natural matter of animals, in the way that things like anger and fear are, not in the way that a line and a plane are.⁷

The contrast between these different kinds of objects depends on a distinction Aristotle draws between two kinds of “separability” or independence: whether one thing can exist without another, traditionally labeled ‘separability in existence;’ or whether one thing can be understood without another, traditionally labeled ‘separability in thought’ or ‘in account.’⁸ Geometrical entities like the line and the plane are not separable from matter in existence, but only in thought: even though they cannot exist apart from matter in which they are instantiated, we can still understand them “in abstraction” (ἐξ ἀφαιρέσεως) without also thinking of the kind of bodies to which they belong (403b14–15).⁹ The “states of the soul” (τὰ πάθη τῆς ψυχῆς), in contrast, will be inseparable in *both* ways from matter. Aristotle takes this conclusion to be the upshot of his earlier discussion of the proper form of definitions in psychology. Psychological states as a whole are in-

⁷ *An.* I 1, 403b17–19: ἀλλ’ ἐπανιτέον ὅθεν ὁ λόγος. ἐλέγομεν δ’ ὅτι τὰ πάθη τῆς ψυχῆς οὐ χωριστὰ τῆς φυσικῆς ὕλης τῶν ζώων, ἢ δὴ τοιαῦθ’ ὑπάρχει θυμὸς καὶ φόβος, καὶ οὐχ ὅσπερ γραμμὴ καὶ ἐπίπεδον.

⁸ For a classic discussion of different types of separability in Aristotle, and in particular the contrast between existential and definitional independence claims, see Fine 1984, 34–45. I do not distinguish here between being ‘separable in thought’ and ‘separable in account,’ as I am taking the former to involve the ability to understand (voεῖν) the item in question as such, that is, to have a correct grasp of its essence.

⁹ I am not observing the distinction Charles draws (p. 5, esp. n. 11) between something’s being thought “in abstraction” and its being “separate in thought,” that is, between (a) understanding something *without* thinking of it as belonging to another thing and (b) understanding it *as not* belonging to that other thing, respectively. This scope distinction is a valuable one, but I doubt that Aristotle’s two phrases track it, and for our purposes, all that matters is the first and weaker notion, (a), of being able to understand one thing without thinking of another, to which I will refer indifferently by either of Aristotle’s phrases.

separable from the components specified in their definition, material as well as formal, in both ways:

1. The psychological state as a whole is inseparable in existence from its components: it cannot exist apart from either component.
2. The psychological state as a whole is inseparable in thought from its components: it cannot be understood apart from either component.

Although one might imagine anger as having just one of these components, as Aristotle's predecessors might have, our thought would be mistaken. To genuinely understand the essence of anger, what anger is, one must keep both components in mind. In this way, psychological states are inseparable from matter in a way that mathematical objects are not. Call this position, "MODERATE HYLOMORPHISM."

Moderate hylomorphism offers a straightforward reading of the contrast with mathematical objects, without yielding Charles' position. To appreciate this, we need only pay closer attention to the fact that claims about separability are nonsymmetric: there are cases where some things are inseparable from others, but not vice versa. Moderate hylomorphism only claims that the psychological state *as a whole* is inseparable (in both ways) from its formal and material components. Nothing follows about the inseparability *of the components*, either from the psychological state as a whole or from each other. In the abstract, each might be separable in existence: a material state like boiling blood might be found apart from anger or the desire for retaliation, just as the desire for retaliation might be found apart from anger or from boiling blood, as "a dish best served cold," in more mature and less hot-headed people.¹⁰ And these components might well be separable in thought, as Aristotle's own discussion suggests. Each of the partial definitions he considers contains just one component, and while he thinks that this is the wrong way to understand the psychological state *as a whole*, nothing indicates that these other definitions have inaccurately characterized *the components*. Aristotle's objection is not that their definitions are wrong as far as they go, but that they do not go far enough. They are *incomplete*: one proponent "ignores" (ἀγνοῶν) the form, while the other is "concerned with the form exclusively" (περὶ τὸν λόγον μόνον, 403b6–7). All the true natural philosopher has to do is bring the two together. They

¹⁰ Hypothetical necessity requires that the matter be suitable for realizing the form; but other types of material state might be suitable for such desires as well.

have successfully latched on to part of their subject matter, just not the whole of it. If this is right, then in Aristotle's view it is possible to understand each component apart from the other and apart from a correct understanding of the psychological state as a whole: they are separable at least in thought.

Moderate hylomorphism gives us, if you like, only the DOWNWARDS INSEPARABILITY of the psychological state as a whole from its components in both existence and thought. But this does not entail the UPWARDS INSEPARABILITY of the components from the whole state in either way, much less their HORIZONTAL INSEPARABILITY from each other. What is especially important for Charles' interpretation is this last kind of inseparability. The material and formal components of a psychological state are "inextricable" from each other, he thinks, in that neither *component* can exist without the other or be genuinely understood without thinking of the other. The definition of each makes essential reference to the other (p. 17).

In addition to (1) and (2), then, Charles takes Aristotle to be also committed to their *converses* as well:

- 1'. The components of a psychological state are *inseparable in existence* from the psychological state as a whole and so from the other component: neither component can exist apart from the state as a whole or from each other.
- 2'. The components of a psychological state are *inseparable in thought* from the psychological state as a whole and so from the other component: neither component can be understood apart from the state as a whole or from each other.

Call this position "STRONG HYLOMORPHISM." Unlike extreme hylomorphism, it allows that psychological states can genuinely be decomposed into two kinds of components. But these components are not pure: they cannot even be understood apart from each other, much less exist apart. They are horizontally inseparable. On this reading, Aristotle's predecessors not only fail to get an accurate definition of the psychological state as a whole. They do not even manage to characterize either component correctly.

The challenge for strong hylomorphism is to find textual evidence for its distinctive claims, (1') and (2'), since Aristotle's programmatic remarks in *De Anima* I 1 can be read as committing him to nothing more than (1) and (2). Without such evidence, we should just accept moderate hylomorphism, since it provides a more economical interpretation of Aristotle's opening chapter.

III. *Purity*

Let us now turn to the remaining Cartesian assumptions, concerning the purity of the psychological and the physical individually. Assorted “impurities” can be found in each case, but none in the sense relevant for Charles’ interpretation.

A. *The Purity of the Psychological*

Charles directs most of his efforts against (CA1), the thesis that “[p]erception and other such activities involve a purely psychological activity type.” Whether or not this is true depends on a crucial ambiguity involving the word ‘psychological.’

I have characterized anger and other states such as perception or desire as psychological states themselves. But there is also a tendency, widespread in the literature, to gloss Aristotle’s view by saying that states like anger are *psychophysical*, which suggests that *one of its components* is psychological and the other physical. Calling both the whole state and one of its parts “psychological” is bound to generate confusion and for clarity’s sake we ought to find different terms. But it would be unnatural to call states like anger anything other than psychological. So instead we can speak of such states as having both *psychical* and *bodily* components, or more neutrally as having *formal* and *material* components, or even just simply *form* and *matter*, as Aristotle does himself in the passage we have been examining (403b1–3, 7–8).

Part of the confusion here may be due to functionalism, which explicitly looked to Aristotle as a source of inspiration and was popular for a time as an interpretation of Aristotle. Functionalists rightly took psychological states to be necessarily enmattered for Aristotle. But in their effort to secure the autonomy of psychology, they identified the definitions of psychological states like anger with the definition of *its formal component*. In so doing, they departed from Aristotle himself, in favor of the position of the “dialectical” or analytic philosopher (ὁ διαλεκτικός, 403a29), which Aristotle rejects. On his own view, the material component is as much a part of the essence as the formal component and so must be mentioned in the definition of the psychological state. For this reason, Aristotelian definitions are not the topic-neutral “logical descriptions” that functionalists wanted, which would allow the multiple realizability of psychological states and the autonomy of psychology.

In fact, not even the definition of the formal component is topic-neutral in the required way. In Aristotle’s sample definition, the formal component of anger is specified as “a *desire* for retaliation or the like” (ὄρεξιν ἀντιλυπ-

ήσεως ἢ τι τοιοῦτον) and so explicitly includes a psychological state. Functionalists might not regard the occurrence of a psychological state in the definition as fatal, so long as it is treated as merely provisional. They themselves stress the “relational” character of psychological states and ways in which they must be specified by reference to each other. It is for this reason that they approach such definitions holistically, in terms of an entire psychological theory, so that psychological terms can be eliminated from all such provisional definitions simultaneously, using the Ramsey-Lewis method for defining theoretical terms.¹¹ The problem is rather that on *Aristotle’s* theory, desire is itself a hylomorphic composite. So even if his sample definition of anger does not explicitly include reference to matter in the formal component, it does so implicitly, in so far as there is a hylomorphic composite nested within it that contains matter itself. Accordingly, Aristotle does not appear concerned to “eliminate” psychological terms from his definitions, any more than he is to remove the presence of material terms from it. Nor does he regard such mixed definitions as provisional, apart the specific details concocted for the example. On the contrary, as far as the form of the definition is concerned, it is intended to serve as a model. Aristotle does not manifest the concerns or motivations that drive functionalism at all.¹²

Or is this just grist for Charles’ mill? If the formal component of anger is itself a hylomorphic compound, it will be inseparable from matter both in existence and in thought. This by itself shows that the formal component need not contain form alone and so be “impure.” Isn’t that enough to overthrow (CA1), the purity of the psychological? Not in the sense Charles requires. On his interpretation, the formal component of a state like anger cannot be specified as such without reference to the material component of *anger*: the desire for retaliation must be of the boiling-blood-sort (pp. 7, 17). But all that follows from the discussion in the previous paragraph is that that desire will be inseparable from *its own* matter, from the material component of *desire*, which might well be different. The desire for retaliation exhibits downwards inseparability just as anger does. It does not imply the kind of horizontal inseparability of anger’s components that Charles needs to establish.

¹¹ See Lewis [1970] 1983.

¹² I discuss Aristotle and functionalism more fully in Caston 2006, 320–22.

B. *The Purity of the Physical*

There are even fewer grounds for regarding the material component as inseparable from the formal. To continue with Aristotle's sample definition, the material component of anger is boiling blood; and while there are various reasons for thinking of blood itself as inseparable from the whole living being and from its form, the soul,¹³ there does not seem to be any reason to think that boiling blood is inseparable *from anger* or *from its formal component*, the desire for retaliation. So again we seem to lack the upwards and horizontal inseparability that strong hylomorphism requires.

If anything, there is some reason to think that the underlying material component can be understood without thinking of the formal component. Aristotle relies on the following intuition to establish his own position, and so it is clearly one he accepts himself:

It seems that all the states of the soul also involve a body—anger, gentleness, fear, pity, zeal, and further joy, love, and hate—for the body undergoes some kind of change *along with these*.¹⁴

In saying that bodily changes occur “along with these” (ἄμα τούτοις) psychological states, Aristotle is clearly indicating a distinct type of change; and to avoid triviality or circularity, the changes in the body must be specifiable as such independently of the psychological states. If so, then they are separable from the psychological states at least in thought and thus pure.¹⁵ If they could *only* be specified by reference to the psychological state, the correlation he invokes here would not be an empirical matter, but one of *logical entailment*, and his claim here would not constitute evidence for his thesis, as he seems to think it does. And when he does use periphrastic expressions, such as earlier in the passage,

¹³ Though not psychological in our sense of the term, blood is essentially part of an ensouled living being for Aristotle. Separate from a living being, he thinks it would be blood only in name (πλὴν ὁμωνύμως), not in the principal sense (κυρίως). Therefore, it cannot exist or be properly understood as blood apart from the living being and its soul, giving us both upwards and horizontal inseparability.

¹⁴ *An.* I 1, 403a16–19: εἶκοι δὲ καὶ τὰ τῆς ψυχῆς πάθη πάντα εἶναι μετὰ σώματος, θυμός, πραότης, φόβος, ἔλεος, θάρσος, ἐπιχαρὰ καὶ τὸ φιλεῖν τε καὶ μισεῖν· ἄμα γὰρ τούτοις πάσχει τι τὸ σῶμα.

¹⁵ If, as I believe, these bodily states form a supervenience base or ground for the psychological states in question, they will not be separate in existence from those states, but only separate in thought.

At times we are moved by trivial and faint [stimuli], whenever the body is engaged and *in the same state it is in whenever we are angry* . . .¹⁶

there is no reason to think he is limited to such circumlocutions, much less using them to define these states (*pace* Charles, p. 12). It is much more reasonable to think that he is using this description rigidly to *pick out* the very state in question, which can be further investigated and ultimately given more substantive characterizations.

IV. *Determinates, Determinables, and the Snub*

Lastly, I would like to consider briefly two notions that Charles imports from outside *De Anima* A 1 to help elucidate his positive view: first, the modern distinction between determinates and determinables and second, Aristotle's example of the snub nose as a paradigm for hylomorphic compounds in general.

A. *Determinates and Determinables*

Aristotle's hylomorphism, on anyone's account, holds that it is impossible to define states like anger purely in formal terms or purely in material terms. Strong hylomorphism claims that the same holds for these components themselves. We fail to pick out the precise kind of desire for retaliation relevant for anger, if we fail to specify the material process that accompanies anger, the boiling blood (pp. 9, 17; cf. 7, 8). Similarly, we fail to pick out the relevant kind of boiling blood if we do not also specify the aims with anger, such as retaliation (pp. 13–14, 18, 24). The relevant kind of boiling blood is, in Charles' words, “essentially directed towards revenge. It is the presence of this goal that makes the relevant bodily process the one it is” (p. 12). Although these characteristics are jointly sufficient for anger, taken individually neither is, even though each is necessary: on Charles' view, there are cases of desiring retaliation that are not anger (cf. *Rhet.* 1390a15 ff.) and likewise cases of blood boiling at the same temperature that are not. This last point, about blood, could be questioned,¹⁷ but we

¹⁶ *An.* I 1, 403a21–22: ἐνίοτε δ' ὑπὸ μικρῶν καὶ ἀμαυρῶν κινεῖσθαι, ὅταν ὀργᾷ τὸ σῶμα καὶ οὕτως ἔχη ὥσπερ ὅταν ὀργίζηται.

¹⁷ Unlike the case of desire, where Charles can cite Aristotle's remarks about the cool vengefulness of the aged (n. 19), there is no textual evidence offered for boiling of the blood apart from anger. And it would be rejected by any interpretation that claims that the psychological state supervenes on the total material state of the body as its base, as Aristotle's own words suggest at *An.* I 1, 403a21–22 (quoted above, n. 14).

can grant it for the sake of argument. These extensional claims can be represented as follows in Fig. 1:

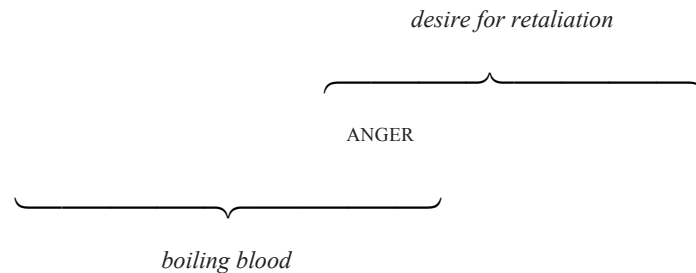


Fig. 1

Charles puts this in the terminology of determinables and determinates. On their own, the desire for retaliation and boiling blood are mere determinables. The determinate species of each that occurs in anger arises only because of the presence of the other component, which functions as a “determinant” (pp. 7–8, 11, 20). Each determines the other determinable, resulting in “a boiling-of-the-blood-type-of desire for revenge” and a “for-revenge-type-of blood boiling” (p. 18).

The distinction between determinables and determinates, though, is ill suited to Charles’ aims. As Arthur Prior’s brief history shows (1949, 1–7), the distinction was developed as an *alternative* to the traditional understanding of a species as a genus determined by a differentia, because of misgivings about the distinction between the genus and the differentia. As traditionally conceived, the genus seems to be prior, as the “determinable part of the essence” (*pars determinabilis essentiae*), while the differentia is posterior, the “determining part” (*pars determinabilis essentiae*) or “determinant.” But in so far as they are two logically distinct characteristics, it seems a matter of indifference which determines which: in either case the species is the conjunction of these characteristics and its extension is their intersection, both commutative operations. In the cases W. E. Johnson and others singled out, there seems to be only a genus and its various species, without any distinctive differentia: red, blue, and green are all determinate colors; but there seems to be *no distinct differentia* that determines the de-

terminable color. If we try to identify the differentia that makes color red, they claim, we are reduced to stating the name of the species over again, or using pleonasms without any independent purchase, such as the “red-making feature.” In such cases, there is no differentia or determinant; there is only the determinable and its various determinates. The absence of a determinant is part of the common intuitive ground shared by virtually all of those who discuss determinates and determinables, however they might diverge over the precise analysis of the distinction.¹⁸

On Charles’ interpretation of Aristotle, however, there *is* a determinant in each case. The determinate results from the conjunction of two distinct characteristics, a desire for retaliation and a boiling of the blood, and it seems a matter of indifference which we regard as determining which, in just the way that had concerned earlier logicians. On Charles’ reading, we can understand anger *equally* as a boiling-of-the-blood-type-of desire for retaliation *or* a for-retaliation-type-of blood boiling. It thus seems to be more in line with a traditional understanding of genus and differentia, rather than the different relation Johnson contrasted with it.¹⁹ It is possible that Aristotle has something like the determinable-determinate relation in mind elsewhere in his philosophy. Herbert Granger (1984) has argued, for example, that Aristotle’s treatment of the differentia in *Metaphysics Z 12* is best understood in these terms, where it is not a determinant, but rather the determinate itself. But however that may be, the distinction between determinates and determinables does not seem to fit the definition of anger in *De Anima I 1*.

¹⁸ Johnson [1921–24] 1964, 1.178, cf. 175–76; Cook Wilson 1926, 1.358–59, §§157–58; Wisdom [1934] 1970, 30; Prior 1949, 5–7; Searle 1959, 142; Searle [1967] 2006, 1; Armstrong 1997, 49; Funkhouser 2006, 548–49, 550. Sanford 2006 notes the distinction (§1.3), but argues that there is at best equivocal support for this claim in Johnson. Cook Wilson (1926, 1.358, §157) offers a classic statement of the view: “Take, for instance, redness and blueness, which we naturally call species of colour. If we eliminate all that is meant by colour, nothing whatever is left, or if we suppose some differentiating element left, it would have to be something different from colour, whereas it is colour in which they agree and colour in which they differ. We cannot give verbal expression to the differentiating element except by using the species name itself, red or blue.”

¹⁹ It also differs from a modern attempt by Stephen Yablo (1992) to apply determinable-determinate relations to mind-body issues. Yablo suggests that the multiple physical realizations of mental states are determinates of a single determinable, so as to leave room for the causal relevance of the mental. In Aristotle’s terms this would be to make the boiling of the blood a determinate of anger or perhaps a determinate of the desire for retaliation. For a critique of Yablo’s application of the determinable-determinate relation, see Funkhouser 2006, 562–66.

B. *The Snub*

If pressed, though, Charles would not want to rest his case on modern treatments of the determinable-determinate relation, preferring instead to take Aristotle's remarks on snub noses as his guide (n. 15). The idea, perhaps, is that being concave is a determinable which has many determinate forms: in noses, being snub; in legs, being bowlegged; and so on (*SE* 31, 181b37–182a3). Yet here too we find a combination of two independent characteristics—being concave, on the hand, and being in a nose or in legs, on the other—which together result in a third, determinate kind, and so again something more in line with the traditional understanding of a species as resulting from a genus and differentia, rather than a mere determinate of some determinable.

More important for Charles' argument, I believe, is Aristotle's use of the snub nose as a paradigm of a hylomorphic compound and the contrast he repeatedly draws between the two attributes *snub* and *concave*. On a number of occasions, Aristotle uses this contrast to distinguish the way in which mathematics and natural philosophy approach their respective objects.²⁰ Not only should flesh, bone, and man be defined like the snub (*Phys.* II 2, 194a5–6), but also the nose, eyes, face and the animal as whole, or again the leaves, root, bark, and the plant as whole (*Metaph.* E 1, 1026a1–2; cf. K 7, 1064a27). And “if *everything natural* is spoken of in a similar way to the snub” (πάντα τὰ φυσικὰ ὁμοίως τῷ σιμῶ λέγονται), then the soul will also be an object of natural philosophy, “to the extent that it is not without matter” (ὄση μὴ ἄνευ τῆς ὕλης ἐστίν, *Metaph.* E 1, 1025b30–1026a6).

Snubness, like concavity, is an attribute or characteristic (πάθος).²¹ But unlike concavity, which can belong to all sorts of things, snubness is a characteristic of noses exclusively: ‘x is a snub,’ entails that ‘x is a nose’ for any value of x, while ‘x is concave’ does not. Being in a nose is part of the essence of snub, of what it is to be snub, and thus part of its definition. It cannot therefore be identified with concavity *tout court*: it is concavity *that*

²⁰ *Phys.* II 2, 193b31–194a12; *Metaph.* E 1, 1025b30–1026a6; K 7, 1064a19–28.

²¹ *Metaph.* Z 5, 1030b19; *SE* 13, 173b5–7; 31, 182a4. Often Aristotle uses the abstract noun, ‘snubness’ (ἡ σιμότης): *Metaph.* Z 5, 1030b19; Z 10, 1035a5; Z 11, 1037a31; *Phys.* II 2, 194a13. But sometimes he uses a neuter substantive instead, ‘the snub’ (τὸ σιμόν), which is ambiguous between the characteristic or type and a concrete object picked out because it exemplifies that characteristic. Though the ambiguity matters in some cases, I will be concerned largely with the kind of characteristic or type it designates, rather than any individual that exemplifies it.

belongs to a nose (κοιλότητα ῥινός, *SE* 31, 182a4–6). Snubness is, to use Aristotle's expression, a ‘this in that’ (τόδε ἐν τῷδε).²² It is a “*per se* accident,” something which must intrinsically be specified in terms of the subject to which it belongs.²³ Accordingly, it cannot be understood separate from the matter that exemplifies it, whereas concavity is separable in thought (*An.* III 7, 431b12–16). That is why, according to Aristotle, the objects of mathematics are like concavity and the objects of natural philosophy like snubness.²⁴

All of this fits snugly with moderate hylomorphism. Anger, like snubness, is an attribute or characteristic (πάθος), which cannot exist or be understood apart from its material and formal components. Both belong to its essence and must be included in its definition. In fact, Aristotle's discussion of how to define psychological states (*An.* I 1, 403b7–9, quoted above, p. 82), parallels closely his general remarks about defining natural objects in *Physics* II 2:

Since nature is of two sorts, form and matter, we ought to study [them] as though we were investigating what snubness is, so as not to [investigate] such things either without matter or materialistally. Yet even here one might be puzzled, given that there are two natures, about which the natural philosopher is concerned. Or is he rather concerned with that which is constituted from both? If he is concerned with that which is constituted from both, is he also concerned with each part? Does knowing each belong to the same [study] or a different one? . . . Then it would belong to natural philosophy to know both.²⁵

Aristotle's insistence that we cannot understand anger apart from either its formal or its material components is of a piece with his general approach to hylomorphic compounds. Since natural objects, as such, have both a formal and a material nature, natural philosophy should be concerned with “that which is constituted from both” (περὶ τοῦ ἐξ ἀμφοῖν, 194a16–17; *An.* I 1,

²² *Metaph.* Z 5, 1030b17–18; Z 11, 1036b23; *An.* III 4, 429b14.

²³ It is *per se* in the second of the two senses specified at *APo* I 4 (73a34–b5, cf. b16–20): it does not figure in the essence of the subject to which it belongs—it is for that reason only an accident—but rather the converse: the subject features in its essence. For a detailed characterization of the notion, with further textual references, see Lewis' superb article (2005, 164 n. 6), on the puzzles about defining the snub nose in *Metaphysics* Z 5 and *SE* 13 and 31.

²⁴ *Phys.* II 2, 193b31–194a12; *Metaph.* K 7, 1064a23–24; cf. E 1, 1025b30–a10.

²⁵ *Phys.* II 2, 194a12–18, a26–27: ἐπεὶ δ' ἡ φύσις διχῶς, τὸ τε εἶδος καὶ ἡ ὕλη, ὡς ἂν εἰ περὶ σιμότητος σκοποῦμεν τί ἐστίν, οὕτω θεωρητέον· ὥστ' οὐτ' ἄνευ ὕλης τὰ τοιαῦτα οὐτε κατὰ τὴν ὕλην. καὶ γὰρ διὰ καὶ περὶ τούτου ἀπορήσειεν ἂν τις, ἐπεὶ δύο αἱ φύσεις, περὶ ποτέρας τοῦ φυσικοῦ. ἢ περὶ τοῦ ἐξ ἀμφοῖν· ἀλλ' εἰ περὶ τοῦ ἐξ ἀμφοῖν, καὶ περὶ ἑκατέρας. Πότερον οὖν τῆς αὐτῆς ἢ ἄλλης ἑκατέραν γνωρίζειν· . . . καὶ τῆς φυσικῆς ἂν εἴη τὸ γνωρίζειν ἀμφοτέρας τὰς φύσεις.

403b8–9). In both cases, we must take into account the *downwards inseparability* of the whole compound from its formal and material components.

Charles, however, not only thinks that anger is like snub (p. 8), but that its formal component, the desire for retaliation, is like the snub as well (p. 7). His point is not that the desire for retaliation is itself a hylomorphic compound, which exhibits a downward inseparability from *its* formal and material components. That, as we have seen, is something moderate hylomorphism allows (see above, pp. 36–37). Charles is rather claiming that the desire for retaliation is inseparable from the boiling of the blood, the material component of *anger*—that is, he is insisting on *horizontal* inseparability, as strong hylomorphism requires. But notice that this does *not* follow from the model of the snub. On the contrary, Aristotle takes the formal component of snub to be “pure.” Snubness is concavity in a nose: concavity is its formal component and the flesh of the nose its material component. But flesh is “not part of concavity” (τῆς μὲν κοιλότητος οὐκ ἔστι μέρος ἢ σῶρξ, *Metaph. Z* 10, 1035a4–6; cf. *K* 7, 1064a23–24), and so one “would understand it without the flesh in which concavity occurs” (ἄνευ τῆς σαρκὸς ἂν ἐνόει ἐν ἣ τὸ κοῖλον, *An.* III 7, 431b12–16). The example of the snub, then, does not give any reason to question the purity of the components of anger. Anger may be inseparable from the desire for retaliation and the boiling of the blood. But they can each be understood independently of each other and of anger.

This sort of independence is crucial for the explanatory power of Aristotle’s account. Mathematical truths about concavity apply both to snub noses and to bow legs, regardless of the different matter that exemplifies them, because they exhibit the same mathematical characteristic. In both cases, ‘concave’ has the same common meaning (τὸ γὰρ κοῖλον κοινῇ μὲν τὸ αὐτὸ δηλοῖ ἐπὶ τοῦ σιμοῦ καὶ τοῦ ροικοῦ), even if ‘snub’ and ‘bowlegged’ involve an added qualification (προστιθέμενον) regarding the matter in which it is exemplified (*SE* 31, 181b37–182a1). Concavity is the same in name and in account in both. Similarly, if Aristotle is to get any explanatory leverage from the material characteristics of the underlying flesh, they must be separable at least in thought from the forms they exemplify. The applicability of both mathematical and material generalizations to multiple cases requires the purity of the components. If they were not pure, then applying generalizations involving pure predicates *would* lead to falsehood (cf. *Phys.* II 2, 193b34–35). But they do not.

When Aristotle invokes the snub, he is not trying to bar the relevance of such explanations. He just denies that either on its own amounts to natural philosophy, which studies its objects precisely in so far as each is a ‘this in that.’ We need to take into account both the mathematical and the material

properties of things, along with the sources of change and what the various structures and features are for. But all that is required for that is moderate hylomorphism, which insists on the downwards inseparability of the hylomorphic compound as a whole from its components.

Finally, purity ensures the substantive character of Aristotle’s definitions. If the definitions of the formal and material components do not refer to each other, then the thesis that anger is both a desire for retaliation and a boiling of the blood is a significant and informative claim. If, on the other hand, each component were horizontally inseparable, their combination becomes trivial: it *follows logically* from my having a boiling-of-the-blood-type-of desire for revenge that I have a for-revenge-type-of blood boiling, and vice versa. On such a view, I could not know either part of the essence before I knew the whole: a partial grasp is no grasp at all; it is not only incomplete, but inaccurate. Moderate hylomorphism, in contrast, allows us to make progress stepwise, using accurate but partial insights to complete each other’s deficiencies.

V. Conclusion

To offer a hylomorphic analysis of anything, then, presupposes the possibility of some kind of “decomposition” into two types of component, one formal and one material, from which the compound as a whole is inseparable, in thought as well as existence. But this only gives us downwards inseparability. It does not yet tell us about whether the components are upwardly inseparable from the whole, or horizontally inseparable from each other. Strong hylomorphism claims they are inseparable in all these ways, whereas moderate hylomorphism does not. I have argued that the contrast with mathematical objects, and in particular Aristotle’s example of the snub nose as a paradigm of hylomorphic compounds only requires downward inseparability and therefore requires nothing more than moderate hylomorphism. In the absence of any textual evidence for the distinctive claims of strong hylomorphism, we should prefer moderate hylomorphism, since it is the more economical hypothesis and preserves the substantive and explanatory nature of Aristotle’s definitions of psychological states.

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