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Critical notice for Michail Peramatzis's *Priority in Aristotle's Metaphysics*, Oxford: Oxford University Press, 2011

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I discuss Peramatzis's (2011) argument that the form of a natural substance is essentially enmattered and so contains a material component.

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What is the relation between form and matter in Aristotle? Individual substances in nature are hylomorphic compounds, composites of form and matter. On what I believe a standard interpretation, these constituents are distinct; in particular, form does not itself contain matter; and so even if the form of a natural substance is necessarily enmattered, that form is itself immaterial.

A non-standard view occasionally put forward in the secondary literature is that the form of a concrete substance itself contains matter. And so a form is essentially and not merely necessarily enmattered. The claim comes in a range of strengths. For example, David Balme (1984 and elsewhere) advocates a strong version of this claim, under which the definition of a natural substance makes detailed reference to that substance's specific bodily parts. Jennifer Whiting (1989 and elsewhere) argues for a different version of the claim: there are two kinds of matter, proximate and distal; the form of a natural substance contains its proximate matter but not its distal matter. And, in his *Priority in Aristotle's Metaphysics*, Michail Peramatzis argues for a version of the claim weaker than either Balme or Whiting's interpretations: the form of a concrete natural substance contains, as an independent component, merely a generic reference to that substance's materiality.

Reading *Priority in Aristotle's Metaphysics* is a workout. The writing is dense. The argumentative structure is involved. And in the end, I am not persuaded of Peramatzis's central claims. But the issues are important; the treatment, serious; and Peramatzis arguably succeeds in making a *prima facie* case for a version of the non-standard thesis: the monograph rewards study. This critical notice comes in four parts. In the first section, I shall present and discuss Peramatzis's thesis. The second section contains an extended discussion of Aristotle's 'snub' case, a family of passages which plays a central role in both Balme's and Peramatzis's discussion. Then, in the third section, I shall draw on my reading of the snub case so to defend and discuss a fairly standard reading of the form-matter relation: form contains matter only in the sense that Aristotle is willing to describe a genus as material; the form of a concrete substance does not contain the matter of that substance.

Peramatzis also holds the standard view that a natural substance's form is ontologically prior to the matter of that substance. Where the first two thirds of the

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book defends the view that form contains matter, the last third of the book develops an interpretation of ontological priority. In the final section of this critical notice, I briefly shall discuss dependency and priority in Aristotle.

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Let's begin with a picture. Aristotle occasionally treats mundane concrete substances as composites of form and matter. Form and matter are characterized in *Phys.* 2.3 as causes or explanations of the changes the object undergoes and of the activities in which it engages. The matter is that out of which a change originates and that which persists through the change. At times, Aristotle views matter broadly as the underlying substratum for any change or activity whatsoever; at other times, he views matter more narrowly as the underlying substratum for substantial change, the coming to be and passing away of the substance. In *Phys.* 2.3, Aristotle identifies the form of a concrete substance with its essence or what it is to be that thing. The form is thus associated with a definition or statement of the substance's essence. In *De An.* 2.1, he characterizes the form of a concrete substance as a first actuality, a state or disposition towards activities characteristic of things of that kind.

Aristotle appears to be committed to

- (1) The form of a concrete substance lacks any material component and the definition corresponding to the form makes no reference to the material of that concrete substance.

He characterizes the essence identified with form as the substance without the matter – for example, at *Meta.* 1032^b14 and elsewhere. This suggests that a concrete substance is composed of distinct formal and material constituents; and that the changes which a concrete substance undergoes, and the activities in which a substance engages, are explained by distinct causes.

Philip Kitcher (1985) distinguishes among explanations those that are *top-down* from those that are *bottom-up*. Although the form-matter distinction does not correspond precisely with Kitcher's distinction, the terminology and attendant visual metaphor may be helpful to the reader. Form provides a top-down explanation of the concrete substance in terms of function or disposition towards its characteristic activities. Matter provides a bottom-up explanation of the concrete substance in terms of underlying material whose properties determine the physiology of that substance. For example, an individual human is defined as a rational animal and so formally characterized in terms of such life activities as reproduction, assimilation, locomotion, perception and intellection. The disposition towards such activities is realized in such bodily materials as flesh and bone, and in such bodily organs as genitalia, the digestive tract, limbs and so on.

Aristotle appears to privilege form over matter. Since a thing's form is identified with its essence, it seems that the concrete substance is primarily and necessarily characterized functionally. What it is to be human, for example, is to be disposed towards the activities characteristic of humans. To have the physiology that humans in fact have is secondary. To give another example, consider Aristotle's well-known view that a body part such as a hand, when severed, is no longer strictly a hand. Aristotle expresses this view at *Meta.* 1035^b23–25 and elsewhere. A body part is individuated by its function and its contribution to the activities characteristic of the whole entity of which it is a part. A severed hand has the same physiology as an attached hand. But a severed hand is no longer strictly a hand for it can no longer perform its function nor contribute to the function of the whole human being. From these considerations Aristotelian explanations appear to be predominantly top-down.

Indeed, some have taken Aristotelian forms to be multiply realizable. If, for example, humans are by definition rational animals, then humans are necessarily rational but merely contingently bipedal or carbon-based creatures. The functions or dispositions towards certain activities that are characteristic of humans might have been realized in radically different physiologies. For example, Gill (1989, 132–133) takes this line of interpretation. Such a line also allows for a pleasing if controversial account of perception. The sensible form is realized in both the perceived object and in the sense organ of the perceiver. Redness, for example, can be realized in both apple skins and eye jellies.

Some scholars have challenged parts of this picture. These authors hold that the concrete substance's form possesses a material component and that the definition corresponding to the form makes reference to the material of that concrete substance. In particular, some have denied (1). I shall focus on a recent version of this line of interpretation. In his 2011, Peramatzis argues from the essential enmatterment of form for the denial of (1). We might represent Peramatzis's argument as having the following premises:

- (2) A natural form is essentially enmattered.
- (3) If (2), then a natural form contains a material component.

From (2)–(3) it follows that a natural form contains a material component and so of course (1) is false. Peramatzis's defence of (3) persuades. For a thing's essence corresponds to a definition, an account of what it is to be that thing. If a thing is essentially enmattered then it is plausible to hold that a statement of that essence would make reference to that matter. And so the essence and form itself would contain matter.

Yet we have seen that there is textual evidence in support of (1). Peramatzis resolves this tension by holding that 'matter' is ambiguous and refers to distinct items in the claim that a form is the substance without matter and in (3). Call the *specific* matter of a concrete substance both the *type* of matter found in substances of that kind and the *token* matter of that very substance. So, for example, a human being has material types such as flesh and bone, and material tokens of that human's own flesh and bone. When Aristotle characterizes the form as distinct from matter, according to Peramatzis, he holds that the form is distinct from the specific matter of the concrete substance. The form of an individual human, for example, is distinct from that individual's *token* flesh and bones. And the form is distinct from the *types* of matter, flesh and bone. The material contained in the form, by contrast, is according to Peramatzis a *generic* material component.

Peramatzis does not discuss the generic material component of form in detail. Nor does he give a fully fleshed out case study. He does sketch a few examples. For instance, Peramatzis (2011, 41) gives the example that, since the final cause of a house is the provision of shelter, 'the essence of the house-form may well involve generic material features such as being incorporated in non-porous matter, the one appropriate to embody the formal house-feature of being a covering for the sake of protection.' Elsewhere, Peramatzis suggests that the essence of a statue will involve a material specified as malleable.

Notice that Peramatzis's thesis is modest. It preserves much of the picture with which I began this section. The thesis that a natural form contains a generic material component even allows the form to be multiply realizable, since matter is severely underdetermined by form. Indeed, the thesis precludes only immaterial realization of a natural form and the realization of a natural form in a wholly inappropriate matter – such as a house with porous matter. As such, Peramatzis's thesis is that a natural form contains an independent component which places a weak requirement on the material of the concrete substance.

Although Peramatzis's thesis is modest, I am not confident that it can be maintained in the presence of others of Peramatzis's commitments. To tease out this point, contrast

Peramatzis's thesis with a few examples of weaker and stronger versions of the thesis that a natural form contains a material component. On one exceptionally weak version, we might take the form as containing a material requirement without any further specification whatsoever. For example, one might on this line take the definition of a human being as a rational animal in some matter or other. Or, alternatively, consider again Aristotle's characterization of the soul at *De An.* 2.1 (412^a19–21): 'the soul must be a substance in the sense of the form of a natural body having life potentially within it.' Here Aristotle characterizes the soul by reference to a body merely specified as capable of being alive. In either of these examples, the form is viewed as itself containing a minimally specified material component. Peramatzis's thesis is not a claim as weak as these.

On the other hand, the thesis that a natural form contains a material component easily could be stronger than Peramatzis's thesis. Consider how Aristotle continues his characterization of soul in *De An.* 2.1 (412^a27–^b1): 'the soul is the first grade of actuality of a natural body having life potentially in it. The body so described is a body which is organized.' Suppose for the moment that this characterization is intended to provide a rubric for defining organic species. I doubt that this is the case, for reasons I rehearse below. But for the purposes of illustration, let us temporarily grant this reading of *De An.* 2.1. Then an organism's form, corresponding to a functional characterization of that organism, would govern the kind and arrangement of its bodily parts. For example, a functional characterization of human activities might entail realization in a body organized in some specific way. One activity characteristic of animals is locomotion. Were one to specify this activity in sufficient detail within the definition of a human being, the definition would entail bipedality and so require realization in a creature with two legs. Balme (1984) takes the definition of a natural substance as having just this kind of detailed material component. Peramatzis does not discuss Balme's position. But his thesis is not a claim as strong as this.

So Peramatzis's thesis that the form of a natural substance contains as a component a reference to the material of that concrete substance, conjoined with his contention that Aristotle denies that the form contains any specific reference to this matter, constrains the level of specificity possible in a thing's functional characterization. Peramatzis does not discuss the functional characterization of a natural substance in detail, but he is I believe committed to both the claim that, for example, an animal is formally characterized as capable of locomotion of some kind or other, and the denial that an animal is formally characterized by any *specific* kind of locomotion. Otherwise the thesis that a natural form contains matter risks inflation to the stronger claim that the definition of a natural substance makes detailed reference to the specific matter of that substance. One might find it implausible that adequate definitions of all biological species can be given under this constraint.

However, I shall not pursue this line of criticism further. Instead, I shall argue that (2) is false: the considerations which Peramatzis provides in support of (2) do not support the claim that a natural form is *essentially* enmattered, but are consistent with the significantly weaker claim that a natural form is merely *necessarily* enmattered. And so the concrete substance is a compound necessarily containing both formal and material components. These considerations are of course consonant with (1).

Peramatzis's most developed textual defence of (2) is a lengthy discussion of the example of 'snub'. Peramatzis claims that Aristotle uses the example of snubness to show that

definitions contain matter, since snubness must be defined as concavity in a nose. Notice that, were this the correct interpretation of these passages, they would support a much stronger thesis than Peramatzis's – namely, the claim that form contains matter *types*. For the nose is a type of bodily organ and so less general than the generic material which Peramatzis claims is a component of form. Were snubness defined as concavity in a nose, and the example intended to provide a model for natural form, then we would expect the form of a natural object to make reference to the *type* of material which embodies that form in a hylomorphic compound. And again, there is the risk of inflation from a modest thesis to a stronger one.

I shall not pursue this line of criticism further, either. Instead, I shall argue that Aristotle's intention with the snub case is not to provide a model for the definitions corresponding to natural form; on the contrary, the case is by intention an illustration of an *inappropriate* model for such definitions. So the case provides no support for even the weaker thesis that a concrete substance's form has a component which makes generic reference to the material of that substance. However, it will be profitable to spend some time on the snub case. For it will emerge from the study the sense in which there is a component of the form which Aristotle is willing to call material. And with the snub case in mind, we shall be able to draw a picture of the relation of form and matter that is more accurate than that with which I began this critical notice.

It is crucial to understanding Aristotle's discussion of the snub example that one appreciates that Aristotle employs two notions of definition. There is a narrow notion of the definition of a substance, corresponding to an essence, and composed of a genus and a differentia. And there is a broader notion of an account: some of these are full causal accounts including material and formal modes of explanation; others are structurally similar to narrow definitions. Although his usage is not entirely consistent, Aristotle explicitly draws the distinction. He distinguishes *horismoi* from *logoi*. He occasionally uses *logos* where from the context it is clear that he means to refer to a narrowly conceived conception of definition—for example, at *Cat.* 1a4. But often *logos*, when contrasted to *horismos*, refers to the broader notion of an account. Aristotle also occasionally uses *horismoi* for the broader notion: he canvasses a homonymous, analogous or non-primary *horismoi* at 1030^a17–^b13 and elsewhere; these resemble narrow definitions but, as they do not define substances but rather such nonsubstantial items as qualities, are broad definitions.

Here's the context of the snub case in *Phys.* 2.2. Aristotle contrasts mathematics and physics or the study of nature by their respective objects. The latter are

less separable [from motion] than those of mathematics. This becomes plain if one tries to state in each of the two cases the definitions of the things and of their attributes. 'Odd' and 'even', 'straight' and 'curved', and likewise 'number', 'line' and 'figure', do not involve motion; not so 'flesh' and 'bone' and 'man'—these are defined like 'snub nose', not like 'curved'. (194^a1–7)

Notice that Aristotle's concern is not with definition directly but only insofar as the definitions indicate the separability from motion – see 193^b34 – of the objects of the two fields of investigation. The Greek translated as 'definitions' in the above passage is a cognate of neither *horismos* nor *logos* but of *horos* (at 194^a2). This word is occasionally used as a synonym of *horismos*, as for example at *Meta.* 1045^a26 and *Top.* 101^b38, but when used more broadly indicates a delineation or boundary. For example, at *Phys.* 223^a6, Aristotle characterizes the present moment as the *horos* of the past and the future.

Aristotle continues the above passage as follows: 'Since "nature" has two senses, the form and the matter, we must investigate its objects as we would the essence of snubness.

That is, such things are neither independent of matter nor can be defined in terms of matter only' (194^a12–15). The term 'defined' in this translation is not in the Greek and, given the immediately preceding sentence, it would be better to supply 'investigated'. The term translated 'essence' is not *to ti ēn einai*, the essence corresponding to a narrow definition, but the broader *ti estin* (194^a13). To sum up these philological observations, Aristotle gives every impression of being concerned in this passage with a broad notion of definition and in particular with a full causal account of the objects of nature.

Finally, Aristotle's emphasis is not on including material explanations within a full causal account, but on including formal explanations to the extent that they govern the material. He concludes the chapter with the question, 'How far then must the physicist know the form or essence? Up to a point, perhaps, as the doctor must know sinew or the smith bronze (i.e. until he understands the purpose of each)' (194^b10–12). I shall return to the necessary embodiment of natural substances below. For now it suffices to say this. When Aristotle employs the snub case at *Phys.* 2.2, he clearly aims to show that a full causal or explanatory account of snubness, as well as a natural substance, includes both a formal and a material cause. This entails only that the broad definition, and not the narrow definition corresponding to a natural form, contains a material constituent.

To further support this line of interpretation, let me note that the distinction between broad and narrow definitions is also crucial for the reading of another passage. Perhaps the best case for the denial of (1) is not from considerations of the snubness example, but from direct textual evidence in *Meta.* 7.11. Aristotle writes at 1036^b29–30 that

an animal is a perceptible object, and cannot be defined without reference to change, nor therefore without reference to the state of its parts.

There are reasons to doubt that this passage provides sufficient support for the denial of (1), however. The claim is an outlier, with little collaborating evidence. On the contrary, there is ample evidence that Aristotle supports (1) even within *Meta.* 7.11. Furthermore, the immediate context of the passage fails to support the denial of (1). Aristotle rejects the position of Socrates the Younger, who held that animals can exist apart from their bodies. But one might reject this position, and so deny the possibility of disembodied animals, without concluding that there is a material component contained in form. Rather, one need only endorse the weaker claim that natural forms are necessarily embodied. How then ought we to read the 1036^b29–30 passage? The best option, it seems to me, is to take *horisasthai* here in its broad sense. As such, the passage only reiterates the thesis from *Phys.* 2.2, that a full causal account of a natural substance must include a material cause. Other passages apparently supporting the Peramatzis thesis, such as 1025^b34, can be handled similarly.

Peramatzis (2011, 171–73) rejects this position on the grounds that it is untenable that physics studies one kind of definition and metaphysics studies another. Peramatzis's discussion of this position is brief and it would be good to hear more. To me it seems entirely plausible that the physicist and the metaphysician study different kinds of definitions. Indeed, this is one way of putting the point of some of the argument in *Meta.* 7, as we shall see.

Aristotle's use of the snub example in *Meta.* 7.5 is somewhat different. Again, Aristotle aims to distinguish broad from narrow definitions. But in *Phys.* 2.2, the relevant broad definition is a full causal account, one which includes a material constituent and, in form, a constituent corresponding to a narrow definition. In *Meta.* 7.5, the relevant broad definition is an account structurally isomorphic to a narrow definition but failing to meet a certain requirement. Aristotle explains why snubness lacks a narrow definition at 1030^b28–35:

If a snub nose is the same as a concave nose, then snubness will be the same as concavity. But if we reject this, on the ground that it is not possible to express snubness without reference to that of which it is an attribute in its own right (snubness being concavity in a nose), then it must either be impossible to speak of a snub nose, or the same thing will be said twice, i.e. concave nose nose. (For a snub nose will be a concave nose nose.) And therefore it would be absurd if such things had an essence.

Some have taken this passage to argue against the definability of 'snub nose' since such definitions would be the tautological 'concave nose nose', while allowing for the definability of 'snub' with essential reference to material. However, I believe that this line of interpretation is mistaken on several points. Aristotle makes reference to a certain sophistical refutation, an invalid form of argument. A correct interpretation requires that we appreciate the nature of this kind of argument.

In SE 13, Aristotle introduces the sophistical refutation of babbling or repetition. Aristotle implies at 182^a5 that the intended result is an absurdity (*atopon*). However, the refutation does not aim to force one's interlocutor to state a logical absurdity, such as a contradiction or obvious falsehood: these are akin to distinct types of refutations. Nor is it obvious that the aim is to force one's opponent into stating an obvious and trivial truth or a tautological and so uninformative definition. Rather, it may be simply that reducing one's opponent to babbling is taken to carry considerable rhetorical force.

Aristotle considers two kinds of repetition. The first kind arises for relative terms where the broad definition – notice the use of *logos* at 173^a34 – repeats the original term. For example, 'double', as a relative term, signifies the double of something, namely the half. So double is double of the half. Repeated substitutions of the account for the name leads to a regress. Aristotle assumes that a term and its account have the same meaning and so one can be substituted for the other in certain contexts. The case of relative terms does involve substitutions within the context of a definition – namely, the definition of that very term.

Aristotle considers a second kind of term which leads to repetition at 173^b5–11: these are

terms which, though they are not relative terms at all, yet have their substance, viz. the things of which they are the states or affections or what not, indicated as well in their definition, they being predicated of these things. Thus e.g. odd is a number containing a middle; but there are odd numbers; therefore there are numbers numbers containing a middle. Also, if snubness is a concavity of the nose, and there are snub noses, there are concave noses noses.

First, notice that the class is characterized as states or affections of substances. This suggests that the terms of this class refer to items in non-substance categories other than relations. These items inhere in a substance as a subject. The broad definition – again, Aristotle uses *logos* at 173^b7 – of these terms makes reference to the substances in which they inhere.

Admittedly, the examples of subjects in the passage, numbers and noses, are not substances. But they serve their purpose as toy examples. And although they are not strictly substances, they may be thought of as substances homonymously, analogously or in a derivative sense. I argue in Corkum (2012) that numbers are quantities and so are ontologically dependent on concrete substances; however, they are treated by the mathematician as if they were substances. That is to say, numerical quantities are attributable to concrete substances. And so they fail to exhibit one mark of substances – namely, that terms referring to a substance are impredicable. Nonetheless, numerals are impredicable of other items within number theory and so play the role of substances within this branch of mathematics. Noses might be viewed somewhat similarly. The parts of a

substance are not themselves substances, for such parts are ontologically dependent on their wholes. As such, bodily parts fail to exhibit another mark of substances: they are not separate or ontologically independent. However, a nose has attributes which belong properly to the nose itself. And so, although the parts of a substance are not themselves substances, a nose might be considered by extension as if it was a substance relative to the attributes which belong to the nose *per se* and in abstraction from the concrete substance of which the nose is a mere part.

Notice that the snub example in the sophistical refutation of repetition does not concern a material component in a definition. Admittedly, a concrete substance has a material component, and matter can be the subject of certain predications. But I find it doubtful that Aristotle's concern with the snub example in SE 13 is with form and matter. Snubness is given as an example of a term the broad definition of which makes reference to that subject of which the term is an attribute. 'Snub nose' is an example of the predication of the attribute to the subject. Aristotle's concern, then, is not (*contra* Balme and Peramatzis) with the narrow *definition* of the compound *snub nose*, and his worry is not that such alleged definitions are tautological or uninformative. Rather, 'snub nose' is an example of an attribution or predication. 'Snub' is attributed to, or predicated of, a nose. In Greek, predications and attributions through adjectival modification can be difficult to distinguish. But I find it plausible that in SE 13, Aristotle canvasses the sophistical refutation that certain attributions are repetitive.

Aristotle returns to this sophistical refutation in *Meta.* 7.5. Although in SE 13, Aristotle offers a crabbed version of the refutation in the case of attributes such as snubness, at 1030^b28–35, he provides an unpacked statement of this argument:

If a snub nose is the same as a concave nose, then snubness will be the same as concavity. But if we reject this, on the ground that it is not possible to express snubness without reference to that of which it is an attribute in its own right (snubness being concavity in a nose), then it must either be impossible to speak of a snub nose, or the same thing will be said twice, i.e. concave nose nose. (For a snub nose will be a concave nose nose.) And therefore it would be absurd if such things had essences.

The class of terms in this kind of sophistical refutation by repetition is specified here more precisely than in SE 13. The terms pick out items which in their own right belong to a subject. So the account of the relevant attribute necessarily makes reference to the subject in which the attribute inheres. These are what Wedin (2000: 247ff.) calls *per se*₂ attributes. The argument is presented as a dilemma. Both horns of the dilemma rest on two assumptions: first, that one can legitimately make the ascription of snubness to a nose; and second, that a term makes the same semantic contribution to any phrase in which it occurs regardless of context. For suppose that we can take 'snub nose' and 'concave nose' to have the same meaning. Then, if 'nose' makes the same semantic contribution to both phrases, we have the undesirable result that 'snub' and 'concave' are equivalent. On the other hand, if we substitute the proposed account of snubness, concave nose, for 'snub' in 'snub nose', we obtain the repetitive expression 'concave nose nose'.

Aristotle's intention in the above passage is not to endorse the conclusion. He does not hold that the compound expressed by 'snub nose' lacks a narrow definition since it leads to repetition. Rather, the intended audience would be familiar with Aristotle's resolution of the sophistical refutation, presented in SE 31. It is this resolution that points to a key difference between narrow and broad definitions. So I turn next to SE 31.

Aristotle gives two responses to the sophistical refutation of repetition. It is tempting to think that the two passages respond respectively to the two horns of the dilemma presented in 1030^b28–35. Although the response to the second horn is the more relevant to the

concerns of this notice, I shall discuss the response to the first horn as something of an aside. The first horn, recall, is that, if 'snub nose' and 'concave nose' have the same meaning, then the falsehood follows that 'snub' and 'concave' have the same meaning. In response, Aristotle writes at 181^b35–182^a3 that

In the case of terms that are predicated of the terms through which they are defined, you should say that the term broadly defined is not the same in abstraction as it is in the whole phrase. For 'concave' has a general meaning which is the same in the case of a snub nose, and of a bandy leg, but when added, in the one case to 'nose', in the other to 'leg', nothing prevents it from meaning different things; for in the former connexion it means snub and in the latter bandy; and it makes no difference whether you say snub nose or concave nose.

In the characterization of the term as defined, Aristotle again uses a cognate of *logos* at 181^b36. So there is a *prima facie* reason to take his concern to be the broad definition of terms such as 'snub'. His intended argument in this passage, however, is not entirely perspicuous. I shall canvass a reading.

Aristotle seems to hold that the two occurrences of 'concave' in the broad definitions of 'snub' and 'bandy' mean the same because snubness is concavity in a nose and bandiness is the same shape in legs. Aristotle goes on to apparently claim that there are two distinct senses of 'concave' in 'concave nose' and 'concave legs', since the former means the same as 'snub' and the latter means the same as 'bandy'. However, this second claim is in tension with the first. If we accept that the meaning of a term is the semantic contribution that term makes to any context in which it occurs, we might take Aristotle to hold that 'concave' makes a different semantic contribution to 'concave nose' and 'concave legs'. Yet the term indicates the same shape in both phrases. So Aristotle must instead hold that a term does not necessarily possess independent significance within any context. In these cases, a meaning can only be assigned to a complex phrase as a whole.

Such claims are of course familiar from philosophy after Frege. But, if Aristotle indeed endorses this thesis of non-compositionality, it is not out of Fregean considerations of intensional contexts or the informativeness of identity statements. Moreover, the signification of a phrase in Aristotle is not linguistic meaning or what any competent speaker of the relevant language understands in grasping the phrase. Rather, signification in Aristotle is the relation between a linguistic term and an affection of the soul. Such an affection in turn is similar to extra-mental reality. So the rejection of compositionality is not a denial of linguistic learnability or productivity. Notice, Aristotle's thesis of non-compositionality would prevent the antecedent of the first horn from obtaining. For we cannot abstract 'nose' from 'concave nose' and 'snub nose' so to derive the false equivalence of 'snub' and 'concave'. So a term does not necessarily contribute the same semantic content to any context in which it occurs. If this line of interpretation is correct, then the claim that 'concave' has itself different meanings in 'concave nose' and 'concave legs' is misleading. Aristotle would have been clearer had he claimed that 'concave nose' and 'concave legs' have different meanings. At any rate, this horn of dilemma is of less interest for our current purposes and so the difficulties of interpreting this passage need not detain us further.

The second horn from 1030^b28–35, recall, is that, if 'snub' does not have the same meaning as 'concave' but instead means 'concave nose', then 'snub nose' means the same as the repetitive 'concave nose nose'. In response, Aristotle at 182^a3–6 writes:

Moreover, the expression must not be granted in the nominative case; for it is a falsehood. For snubness is not a concave nose but something (e.g. an affection) belonging to a nose; hence, there is no absurdity in supposing that the snub nose is a nose possessing the concavity that belongs to a nose.

Aristotle occasionally allows for terms to bear truth values. We might prefer to say that it is rather the *claim* that ‘snub’ possesses a nominative case which is false. Of course, the adjective ‘snub’ takes a nominative case when its subject, with which it is in agreement, is in the nominative case. Aristotle must mean that ‘snub’ strictly lacks a *substantive* use of the nominative case. Although we can speak of ‘the snub’ or ‘snubness’, such substantives are abstractions and merely analogous to terms picking out legitimate substances.

This observation constitutes a response to the second horn of the dilemma presented in 1030^b28–35. The resolution of the fallacy of the sophistical refutation of repetition is that snubness is not a concave nose but concavity belonging to a nose. Nor is there any absurd repetition or babbling through substitution of a name with a broad definition within an attribution. For substituting the broad definition of snubness for ‘snub’ in the attribution ‘snub nose’ derives not ‘snub nose nose’ but ‘a nose possessing the concavity that belongs to a nose’.

Balme (1984, 3) holds that this response is still tautological and so offers no solution. For regardless whether ‘snub nose’ is defined as a concave nose nose or as a nose possessing the concavity that belongs to a nose, ‘nose’ is repeated in the *definiens*, so the solution remains repetitive. Moreover, ‘nose’ occurs in both the *definiendum* and the *definiens*, so the proposal is circular. Balme holds that Aristotle himself recognized the failure of the proposal. For at *Top.* 130^a34, he rejects the proposed account of fire given by ‘a body that is the rarest of bodies’ as babbling.

Balme’s positive proposal, to define snub as ‘nose-flesh placed so’, lacks textual support. Aristotle moreover *purports* to offer a solution in defining ‘snub nose’ as a nose possessing the concavity that belongs to a nose. And ‘nose’ indeed occurs twice in the *definiens*, and occurs in both the *definiendum* and the *definiens*. This lends support for my contention that tautology or circularity of definition is not the intended problem with the sophistical refutation of repetition. The problem is rather that one’s opponent is forced into asserting an ungrammatical construction, a meaningless string. The key difference between the proposed account of snub nose and the problematic account of fire at 130^a34 is a grammatical difference: the referent of phrase, ‘the rarest of bodies’, is a *body*; the referent of the phrase, ‘the concavity belonging to a nose’, is an *attribute*. The repeated occurrences of ‘nose’ are not meaningless if one occurrence picks out a subject and the other occurs within an adjectival clause.

Of course, this is a point not just of grammar but also of ontology. Aristotle often appears to assume that linguistic classifications reflect metaphysical categories. As this passage makes clear, Aristotle recognizes that one cannot simply read an ontology directly off a natural language. Rather, ordinary linguistic practices provide but an initial guide to first philosophy. Although ‘snub’ can serve as the subject of a well formed sentence, snubness is neither a substance nor an item analogous to a substance such as a nose. Rather, snubness is an attribute. Substances are narrowly defined without reference to non-substances. But non-substances are broadly defined with reference to the substances in which they inhere. In some cases, this is a general reference to some substance or other. For example, concavity is a surface shape property of sensible substances. In other cases, an attribute is broadly defined with reference to a specific kind of substance: snubness, for example, is broadly defined with reference to noses or, more strictly, to substances which possess a nose as a bodily part.

Let us return to the discussion of *snub* in *Meta.* 7.5. The context of this discussion is that Aristotle aims to identify narrow definitions, those accounts which correspond to an essence, by a distinguishing mark and distinguish such definitions from broad definitions.

Broad definitions, such as the definition of snub as concavity in a nose, are definitions by addition. Aristotle concludes from the consideration of the snub case that

clearly, then, only substance is definable. For if the other categories are also definable, it must be by addition of a determinant, e. g. . . . the odd, for it cannot be defined apart from number When I say 'by addition' I mean the expressions in which it turns out that we are saying the same thing twice, as in these instances [So] if these also are definable, either it is in some other way or, as we said, definition and essence must be said to have more than one sense. (1031^a1–10)

Of course, any definition is a composite, so the condition that narrow definitions not be definitions by addition cannot be the requirement that a narrow definition be simple. Instead, Aristotle might mean that broad definitions include definitions the constituents of which are independent of each other. An indication of this independence is that concavity is found in noses and in legs, and so although snubness is only attributable to noses, and bandiness is only attributable to legs, the broad definitions of each brings together two independent constituents. A narrow definition, corresponding to an essence, is by contrast, a unity. By this, Aristotle might mean that the constituents of such a definition are not independent. The differentia of a narrow definition is found only among members of the genus of that definition. Suppose for illustration that the definition of a human being is as a rational animal; then only animals are rational.

This concludes my lengthy discussion of the snub case. Aristotle intends the case to illustrate a distinction between broad and narrow definitions. In some cases, the broad definition is a full causal account. In other cases, the broad definition has the genus-differentiae structure of a narrow definition but these constituents are independent. The snub case arguably shows that a broad definition may contain matter. But the case fails to establish that (1) is false, i.e., that natural forms are essentially enmattered and contain a material component. I shall turn in the next section to defend an interpretation of the form-matter relation.

3

There is one sense in which a natural form does indeed contain matter. Aristotle characterizes the genus of a narrow definition as a material. He considers the question of the unity of the narrow definition in *Meta.* 7.12 and concludes:

If then the genus absolutely does not exist apart from the species-of-a-genus, or if it exists but exists as matter (for the voice is genus and matter, but its differentiae make the species, i.e. the letters, out of it), clearly the definition is the formula which comprises the differentiae. (1038^a5–9)

The characterization of the genus as material may strike the reader as a loose and misleading metaphor. But a genus is not merely similar to the matter of the concrete substance. Both are potentialities, albeit of quite different kinds. Aristotle's argument in the *Physics* might be taken in the following way. Change is intelligible only if that out of which a change originates is a kind of capacity for the state or activity realized through the change. Potentiality is associated with matter and the term 'matter' is applied so to refer to potentiality even when the referent is not that out of which any change originates. One kind of potentiality is the matter of the concrete substance. This matter, as I shall discuss momentarily, is a capacity for the form of the concrete substance.

A different kind of potentiality is exhibited by a determinable. As I discuss in Corkum 2009, 16 n. 11, the terminology of the determinable-determinate distinction stems from scholastic discussion of the definition of a given species. A genus is the determinable part

of the essence or *pars determinabilis essentiae* and a differentia is a determining part of the essence or *pars determinans essentiae*. The modern determinable-determinate distinction was initially drawn by Johnson (1921, 173–185) as an *alternative* to the genus-differentia analysis of a species. A type such as red is a way of being a colour. But, Johnson holds, red does not share some property with other ways of being a colour, such as yellow. Rather, red and yellow are opposed to each other in a specific way, and it is for this reason that they are both colours. So red is not definable as a conjunction of a genus, colour, with a differentia. However, Johnson also subsumes the genus-species distinction under the determinable-determinate distinction. So he seems to hold that the determinable-determinate distinction is broader than, and inclusive of, the genus-species distinction.

We might draw on the determinable-determinate distinction so to interpret Aristotle's characterization of a genus as material. To note that an item falls under a genus is to leave that item merely partly specified. As a determinable, the genus is a characterization capable of further specification. From here it is an easy step to viewing the genus as itself a kind of capacity. I discuss the characterization of a genus as material so to respond to the ascription to Aristotle of a distinctly mathematical matter in Corkum 2012, 1065–1067. Genus is called matter, on this line of interpretation, by synecdoche. Both a genus and the material of a concrete substance are capacities.

The suggestion that the form contains matter only in the sense that the genus is a determinable resembles what Peramatzis (2011, 110–122) calls the Reconciliatory View. Reconcilers agree with Peramatzis that the definition contains a material component but they disagree that this component is ontologically independent from form; instead they hold that the definition contains a material component which is ontologically posterior to the formal component. Peramatzis does not identify the Reconcilers. There is a sense in which I hold that the definition contains a material component which is ontologically posterior to the formal component. But I do not claim that this matter is the matter of the concrete substance. For I hold that the matter of the formal definition is the genus, which is a determinable. And there is another sense in which I hold that a definition contains a material component which is ontologically posterior to the formal component. I do not claim that the matter of the concrete substance is a component of the narrow definition corresponding to that substance's form or essence. But, as I shall next argue, I hold that the matter of the concrete substance is a component of that substance's account or broad definition.

Notice that the resolution of the unity of the definition, that a genus is a potential made determinate by differentia, could be extended to the unity of the concrete substance. Recall that a concrete substance is a composite of form and matter. The form of a natural substance is a state or disposition towards activities characteristic of things of that substance's kind. Since a natural substance is characterized by activities, such substances are necessarily enmattered. For Aristotle's analysis of activity, as we have seen, requires both formal and material components. The matter of a natural substance is a potentiality. That is to say, the matter is a capacity to realize form. As such, matter is defined with reference to the form. Such definitions are of course broad definitions, since the matter of a concrete substance is not itself substantial. I shall return to this point below.

The position that the concrete substance is unified in virtue of matter being a potential for form might draw on the claim that there are two kinds of matter, distal and proximate. Gill (1989, 128 ff.), Whiting (1992) and others make a similar distinction. The proximate matter is a potentiality or capacity to realize the form of the concrete substance. Such matter is also itself the realization of the distal matter and as such is itself an actuality. To illustrate, let us say that a concrete human being has, as its proximate

matter, flesh and, as its distal matter, earth. Flesh is a capacity for realizing the human form but is also in Aristotle's view a manifestation of earth. Insofar as it is the former, flesh is dependent on form and so is characterized in terms of function. So described, flesh is a necessary component of the concrete substance. And the human form is necessarily conjoined with such a material component. However, insofar as flesh is the realization of earth, it is ontologically independent of the form of the concrete human. And, so described, flesh is merely contingently – or more precisely, inessentially – conjoined with this form.

The concrete substance is a unity since, although it is a composite of form and matter, these constituents are not ontologically independent. The unity of the concrete substance is reminiscent of the unity of the definition, insofar as both are unities in virtue of being composed of constituents which are ontologically related. However, the genus is a potentiality in virtue of being a determinable made determinate by a differentia, a feature proper to items of that genus. The matter of a concrete substance is a capacity or first potentiality for activities characteristic of individual substances of that kind. Both kinds of potentiality are ontologically dependent on the actuality of form. I shall discuss the relevant notion of dependency in the next section.

Aristotle's use of the snub case fails to establish that a natural form is essentially, and not merely necessarily, enmattered. Are there better arguments? Whiting draws a distinction between two kinds of matter similar to the proximate-distal distinction just drawn. She (1992, 84–85) holds that the organic body and its functionally defined parts are essentially enformed, but these are constituted by portions of the elements, which are merely contingently enformed. Whiting is correct that there is a body that is essentially ensouled. But she also holds that form is essentially enmattered. Whiting holds that form contains the proximate or functional matter as a material component for the following considerations. She takes the formal component of a concrete substance's form to be the species of that substance. The concrete substance is individuated by its matter. You and I are both human and so we possess the same species-form. We are distinct, however, since that species is realized in this matter in me and in that matter in you. Yet the form is itself essentially individual. So the form must itself contain a principle of individuation. The proximate or functional matter can serve this role.

I lack the space to discuss Whiting's argument in detail. Whiting holds that a form is an individual since it is a substance and any true substance is 'a this' or *tode ti*. The interpretation of this Greek expression is controversial. Some have taken the demonstrability of a substance to entail that a substance is an individual. However, suppose we concede that a form is itself individual, since form is substance and being demonstrable or a *tode ti* is a mark of substance. Even so, it is not clear that a form is therefore essentially individual and not merely necessarily individual. For a necessary condition of substantiality need not indicate anything essential to that substance. Finally, I hold that although the form of a concrete substance is defined by the narrow definition of its species, I take that substance's form to be itself a token state. So although I agree with Whiting that a form is an individual, I do not believe that there must be a material explanation of a form's individuality.

Peramatzis does not discuss Whiting's argument but he (2011, 174–176) does mention a few differences between their positions. In particular, Peramatzis rejects the distinction between proximate and distal matter. For he (2011, 175) claims even elemental types of matter are more remote than flesh, could be identifiable in purely functional terms and so could be mentioned in a form's definition. Peramatzis does not substantiate this claim at length and it would be good to hear more. For the criteria of identity and persistence between the proximate and distal matters are clearly different: earth persists through the

corruption of the concrete substance and so is not defined in terms of the activities characteristic of that substance.

Let's return to the picture with which I began the paper. There is a sense in which the form contains matter, but only insofar as the genus is a determinable and so can be described as material. The definition corresponding to form does not contain any specific or generic reference to the matter of that substance. As such, the formal or top-down mode of explanation is indeed predominant in Aristotle. However, to note this is not to deny that there is a role for material or bottom-up modes of explanation in an Aristotelian account of natural substances. Indeed, the proximate matter is, as something itself actual, the realization of the distal matter. Flesh, for example, is both a capacity for human activities and a certain kind of earth.

We have seen then no reason to deny the *prima facie* evidence that form is inessentially enmattered and so is itself immaterial. Notice however that these observations fail to entail that form is multiply realizable in matter. For claims about what is essential for an item are independent from claims about what is necessary. It follows from Aristotle's analysis of activity that a natural form is necessarily enmattered and, for all we have seen, may be necessarily conjoined with a specific matter. Likewise, the concrete substance is inessentially material, and *a fortiori* inessentially any specific material. But the concrete substance is not therefore contingently material. Nor, for all we have seen, is the concrete substance contingently any specific material. For example, it may well be necessary, in Aristotle's view, that humans are materially flesh and a kind of earth.

To bring this section of the critical notice to a conclusion, I see no compelling evidence that a natural form is essentially enmattered and not merely necessarily enmattered. Form is immaterial. To note this, however, is not to hold that a form can be realized in distinct kinds of matter.

4

The matter of a concrete substance is ontologically dependent on, and so ontologically posterior to, the form of that substance. The relevant notion of priority is characterized at *Meta.* 5.11 (1019^a1–4): 'Some things then are called prior and posterior . . . in respect of nature and substance, such as those which can be without (*einai endechetai aneu*) other things, while the others cannot be without them.' Peramatzis agrees that the specific matter of the concrete substance is posterior to its form. But he holds that the generic matter contained in a natural form is ontologically independent of the immaterial component of the form. In the last third of *Priority in Aristotle's Metaphysics*, Peramatzis puts forward an interpretation of these notions of dependency and priority. In this brief and final section, I shall not discuss dependency and priority in general. I have discussed these topics at length elsewhere. Instead, I shall sketch the issues with special emphasis on the relation obtaining between form and matter.

A view of ontological independence as an existential capacity was once standardly advocated, both as a philosophical position and as an interpretation of Aristotle's notion of natural priority and dependence. For the philosophical position, see for example Simons (1987); for the interpretative position, see for example G. Fine (1984). The interpretation enjoys some initial plausibility. For example, it provides an attractive reading of the *einai endechetai aneu* clause in the 1019^a1–4 passage quoted above. But there are serious difficulties with the interpretation, and Peramatzis rightly rejects it. I find this section of the monograph to be of less interest, in part since Peramatzis published similar material in

his 2008 and in part since I argued against the interpretation of natural independence in Aristotle as an existential capacity in Corkum 2003 and 2008. Peramatzis does not discuss the argument of these last two articles, but he certainly contributes further support for their negative theses.

Peramatzis's positive interpretation is inspired by Kit Fine. K. Fine has influentially argued for an account of ontological dependence in terms of essence, identity and definition. An essence, as detailed in K. Fine (1995) is not a merely necessary attribute but a collection of propositions true in virtue of that entity's identity. An essence is expressed by a real definition. Unlike a nominal definition, which states what a competent speaker of the language understands, a real definition states what the defined object is. These considerations suggest that one entity ontologically depends on a second entity just in case the latter is a constituent in the former's essence or in a proposition that expresses a real definition of the former. The leading idea of this formulation, then, is that ontological dependence is a narrower relation than an incapacity for separate existence.

Peramatzis (2008, 189) offers the following interpretation of ontological priority:

(PIB) A is ontologically prior to B if A can be what it is independently of B being what it is, while the converse is not the case.

The acronym stands for 'Priority in Being.' Peramatzis cashes out independence in a thing's essence by appeal to non-reciprocal reference in a definition of what that thing is. Expounding an account of ontological independence in terms of non-reciprocal reference, and not in terms of a capacity for existence, as Peramatzis does, is promising. There are reasons to doubt the ascription of PIB to Aristotle, however. I discuss these worries at length in Corkum (Forthcoming a) and shall only mention one here. The emphasis on an item's essential properties renders PIB too narrow to cover all of the cases of dependence in Aristotle. For example, the account fails to capture the dependence of a universal substance on an individual in the *Categories*. And, as I shall explain momentarily, the account fails to capture the dependence of matter on form.

In Corkum (2008, 77), I suggest that an A is separate from B's when A admits of the ontological status of a being independently of standing in a tie to any B whatsoever. I used the letters 'A', 'B' and so on as variables ranging over Aristotelian entities: substances, non-substances, individuals, universals, forms, as well as types and tokens of matter. I believe that this may be Peramatzis's usage in PIB, as well. The characterization in Corkum (2008) leaves unspecified what constitutes the admission of an ontological status. In response, Peramatzis (2011, 243 n. 11) and Koslicki (Forthcoming) have understandably questioned how I intend to develop this notion. A plausible requirement is that the admission ought to be *explanatory*. The item on which a second depends will be a constituent in a proposition specifying that *in virtue of which* the first has a certain ontological status. I appealed to this terminology in my original discussion of ontological dependence in Corkum (2008, 77). And, in Corkum (Forthcoming a) and Corkum (Forthcoming b), I develop the interpretation.

Much will depend, for the success of this proposal as an interpretation of Aristotle, on how we take explanation. Aristotle himself often views the explanation of an item as appealing to items of higher generality. So the explanation of the species humanity appeals to the genus, animal, under which it falls. Such top-down explanations are perspicuously represented by demonstrations, the subject matter of the *Posterior Analytics*. This narrower view of explanation is perhaps part of what is driving the emphasis on essence in Peramatzis's formulation, PIB.

However, although such top down explanations have a privileged place in Aristotle's philosophy of science, we have seen that Aristotle does not ignore bottom-up explanations. Moreover, Aristotle allows for broad definitions or accounts with explanatory force. I believe that some such accounts can play a role in ontological priority relations. Although I do not put the point this way in my previous work, one might view the differences between Peramatzis's and my interpretations as hinging on this distinction between broad and narrow definitions. PIB expresses ontological priority in terms of narrow definitions; my characterization might be viewed as expressing ontological priority in terms of broad definitions. As I argue in Corkum (Forthcoming a), the characterizations I offer are applicable to a broader range of applications – such cases, for example, as the dependence of a universal substance on an individual in the *Categories*.

In particular, my characterization provides a pleasing account of the dependency of matter on form. Recall, Aristotle identifies the form with the first actuality. The matter of the hylomorphic compound is a potential for a given first actuality or mere capacity to be in a certain state or possess a certain ability. As such, an account of what it is to be matter *per se* makes reference to the form. This dependency also is manifest in specific accounts of matter: for to be a specific kind of matter makes reference to a specific form. An account of what it is to be flesh or bone, for example, makes reference to what it is to be human. Flesh, as flesh, *just is* the capacity to realize an ability to engage in human activities. By contrast, although a human is necessarily flesh and bone, an account of what it is to be human does not make reference to flesh and bone. But the dependency of matter on form cannot be expressed in terms of a narrow definition. For the matter of a concrete substance is not itself a substance and so is strictly speaking narrowly indefinable. The dependency of matter on form only can be expressed in terms of a broad definition. And so an exposition of the relation between form and matter will involve an account of that in virtue of which matter has the ontological status it possesses – namely, as a kind of potentiality for form.¹

Note

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