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RESEARCH

The Form is Not a Proper Part in Aristotle's *Metaphysics* Z.17, 1041b11–33

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When Aristotle argues at the *Metaphysics* Z.17, 1041b11–33 that a whole, which is not a heap, contains 'something else', i.e. the form, besides the elements, it is not clear whether or not the form is a proper part of the whole. I defend the claim that the form is not a proper part within the context of the relevant passage, since the whole is divided into elements, not into elements and the form. Different divisions determine different senses of 'part', and thus the form is not a part in the same sense as the elements are parts. I object to Koslicki's (2006) interpretation, according to which the form is a proper part along the elements in a single sense of 'part', although she insists that the form and the elements belong to different categories. I argue that Koslicki's reading involves a category mistake, i.e. the conjunction of items that do not belong to the same category (Goldwater 2018). Since for Aristotle parthood presupposes some kind of similarity of parts, the conjunction of form and elements requires treating these items as somehow belonging to the same category, e.g. 'being', but no such category exists.

Keywords: Aristotle; Koslicki; form; part; whole; category

1. Introduction

At *Met.* Z.17, 1041b11–33, Aristotle shows that a whole, which is not a heap, contains 'something else', i.e. the form, besides the elements, which are present in the whole as matter and into which the whole perishes upon division. It seems clear that the elements are literally parts of the whole, but what about the form? In general with respect to Z.17 commentators either deny that form is a part[1] or allow the possibility that form is a part. Among the latter, some take the stance that form is a part without making it precise what sort of part form is,[2] while others think that form is a proper part.[3] Among those who think that Z.17 supports the view that form is a proper part Koslicki (2006) offers the most interesting proposal.[4]

[1] Yu (2003: 74) takes 'element' to be synonymous with 'component' and states that in Z.17 'form is no longer a component alongside matter, but a principle to organize all material elements into a unity'. Scaltsas (1994) defends a stronger position, arguing that Z.17 is a proof that the form is never a part of the whole. According to Scaltsas (1994: 114), 'Aristotle's solution [at Z.17] applies to any part–whole relation, whether the parts are concrete or abstract'. Scaltsas' position conflicts with Aristotle's statements in Δ.25, 1023b19–22 (and elsewhere) that in one sense of 'part' form is a part of the whole alongside matter.

[2] Morrison calls form 'aspect, component, complement [of matter]' (1996: 199), 'constituent ("part" in an extended sense of "part") of the object' (1996: 204). Morrison's reason for this seems to be the fact that form is the 'indwelling cause of being' (1996: 199), which 'cannot be separate from that of whose being it is the cause' (1996: 195). Morrison has left the terminology deliberately vague (1996: 199) so that it cannot be determined what sort of part form is supposed to be. Burnyeat (2001: 61) implicates that the form of a syllable, i.e. the order of the letters, is some sort of component, but 'is not a component on a par with the letters into which the syllable can be dissolved'.

[3] Lewis (1996: 63), Haslanger (1994: 151), Koslicki (2006: 725–727).

[4] There are few commentators who draw evidence from Z.17 to support the view that form is a proper part. To my knowledge the only other elaborate view besides Koslicki's is Haslanger's (1994). Haslanger thinks that form and matter are proper parts (by 'proper parts' she means parts that are not identical to the whole, 1994: 130 n. 1). Haslanger (1994: 151) assumes that form and matter are parts and takes the text at Z.17 as a proof for the thesis that the matter of a substance is not identical to the substance. This helps her to prove that matter and form are proper parts. It is not clear whether Haslanger thinks that form is a different kind of part from matter. Haslanger hints at this possibility: 'the claim that form is not an element of sensible substance still permits

I will object to Koslicki (2006) and argue that Z.17, 1041b11–33 supports the opposite view. It has to be stressed that my aim is not to argue that the passage at Z.17 is the ultimate disproof of the proper parthood of form. Rather, my aim is to defend the claim that the form is not a proper part within the context of the relevant passage. The form fails to be a proper part when the whole is divided into the elements of the whole, and that is exactly what is done in Z.17, 1041b11–33. However, when the whole is divided differently – into matter and form – the form could be taken to be a proper part alongside matter. Different divisions of the whole yield items that are parts in different senses of 'part'. Thus, in one sense of 'part' the form indeed might be a proper part, while in another sense the form definitely fails to be a proper part.

One might wonder why it is so important to recognize that in some contexts the form fails to be a proper part and why this should count as an objection to Koslicki's interpretation. The brief answer, which I will elaborate here, is that in certain cases the form is not the right sort of entity to be regarded as another part of the whole – the form is indeed something distinct from the elements of the whole, but it is so distinct from the elements that it cannot count as a part in addition to the elements. Koslicki thinks that elements and form are parts 'in a single sense of "part"' (2006: 727), albeit they do not belong to the same category (2006: 723, see section 4).[5] But it seems to me that this qualifies as a category mistake, if by 'category mistake' we understand the conjunction of items that do not belong to the same category (Goldwater 2018: 342). Koslicki's argument for the proper parthood of form suggests that elements and form are somehow similar enough to be conjoined, i.e. the form is like an element at least in the sense that it can be counted as another part together with other elements. I will argue, however, that one of the important lessons that Aristotle teaches us in Z.17 is that elements and form cannot be conjoined – the form is not another part to be added to the elements – or else one is faced with unpleasant consequences.

I will proceed as follows:

1) I will summarize Aristotle's argument at Z.17, 1041b11–33 without adding anything that is not already implicit in the text. This summary will make manifest to which propositions Aristotle is committed.
2) I will show that the passage implies that the form is not a proper part (according to a certain sense of 'part').
3) I will summarize Koslicki's (2006) view, which uses the passage as supporting the thesis that form is a proper part.
4) I will point out what is problematic about Koslicki's (2006) view.

Before addressing the central topic of the article it is necessary to avert a few potential misunderstandings.

1) In contemporary mereology it is understood that 'part' is a relational predicate such that mereological principles, which restrict this relational predicate, either hold or fail to hold of relations, not of objects. However, Aristotle seems to talk about parts as if the referent of 'part' were an object, not the relation of parthood in which a certain object stands to another object. If this indeed were so, it would make no sense to try to characterize Aristotle's notion of 'part' in terms of mereological principles. Luckily, the difficulty is only verbal. Aristotle has to admit that 'part' is a relational predicate (πρός τι), if he maintains that 'half' is a relational predicate – 'when there is a half there is a double' (*Cat.* 7, 7b17, trans. Ackrill 1963). Just as there is no half without a double (7b19–20), there is no part without a whole. If something is a part, it is a part of something. Although Aristotle focuses on parts as objects and not on the parthood relation, he does not confuse objects with the relation. Rather, he talks about parts in so far as they are parts of something, namely,

form to be a part of a different kind' (1994: 132). Moreover, according to Haslanger, there can be 'hybrid part–whole relations which combine various sorts of part' (1994: 135 n. 12). If by 'kinds of part' or 'sorts of part' Haslanger means 'senses of part', then she should allow a whole to consist of matter in one sense of 'part' and form in another sense of 'part'. A whole would consist of a single part in different senses. But this is awkward (see Koslicki 2007: 134–135 n. 11). Furthermore, Haslanger (1994: 134) argues that different kinds of part are distinguished in terms of different principles of division. If the principle of division is X, then the outcome is X-parts. Thus, if there is a principle of division, according to which both form and matter are parts, these should be parts in the same sense of 'part'.

[5] Koslicki argues that 'both the form and the matter are proper parts of a matter/form-compound, strictly and literally speaking, and according to a single sense of "part"' (2006: 727). I agree with this, but then Koslicki adds a remark, which I cannot accept: 'the "something extra," the source of the unity of the whole, [is] itself a proper part of the whole, alongside the remaining, nonformal components' (2006: 727). This suggests that the 'remaining, nonformal components', i.e. the elements, are identified with matter and are taken as a plurality of parts, to which the 'something extra,' i.e. the form, is then added as a further formal component according to the same sense of 'part'.

he takes into account their relational nature. In general, Aristotle treats relations in terms of 'relata, but he addresses these relata *in so far as* they possess relational predicates' (Morales 1994: 256, original emphasis).

2) Contemporary mereologists typically assume that 'part' is a univocal notion, which obeys a fixed set of mereological principles (but, of course, there is controversy over which principles best capture the notion of 'part'). In contrast, Aristotle says that 'part is used in several senses' (*Met.* Z.10, 1034b32) and he gives a list of senses of 'part' at *Met.* Δ.25. What should one make of this? Aristotle could mean either that (a) there is no uniform set of principles for all senses of 'part' or that (b) for a given principle, it cannot be applied to conjoin different senses of 'part'. I will show that at least (b) is true and leave open the question whether also (a) is true (see section 5).

3) For the purposes of this article I will address two Aristotelian senses of 'part': a) elements as parts and b) form and matter as parts. One might wonder whether besides the parthood relation in which an element stands to a whole and a parthood relation in which form or matter stand to a whole there is also a third parthood relation in which an element stands to the matter of the whole. The answer is negative. Aristotle is not committed to the view that the elements of a whole are also parts of its matter. Aristotle admits that elements are material parts, i.e. parts *as* matter (μόρια ὡς ὕλη), and material parts are parts of the composite whole (σύνολον) (Z.11, 1037a24–26), they are present in the whole as matter (Z.17, 1041b31–33), but they are not thereby parts of matter. Matter is not an independent item, which is divisible into, or compoundable out of, elements. Strictly speaking, something counts as matter of the whole when it is *in* the whole, not outside of it, since matter requires form for which it is the matter. Elements *post divisionem* are 'matter' of the whole only homonymously, since they are parts of the whole only homonymously. Outside the whole the elements are independent items. Aristotle endorses the so-called Homonymy Principle: a part that is separated from the whole is a part in name only (see Z.11, 1036b30–2).

2. Aristotle's Argument at Z.17, 1041b11–33

In brief, at Z.17, 1041b11–33 Aristotle presents the following argument:

1. A whole, which is not a heap, is not identical to the elements, into which it is divided.
2. The whole is (contains) 'something else' besides the elements.
3. The 'something else' is not an element.
4. The 'something else' does not consist of a single element.
5. The 'something else' does not consist of many elements.
6. The 'something else' is a principle (cause, substance, nature).
7. Definition of 'element': An element is that into which a whole is divided and which is present in it as matter.
8. Suppressed conclusion: The 'something else' is the form of the whole.[6]

Let us look at the argument in more detail to see how Aristotle justifies each step of the argument. In quotations of Z.17 I have used Ross' (1928) translation with my modifications in brackets. I have also changed the punctuation.

1. A whole, which is one not as a heap (i.e. a plurality of elements), but as a syllable, is not identical to its elements, because the whole does not survive the division into elements, but the elements, into which the whole is divided, survive the division of the whole. In Aristotle's words:

> '...the syllable is not its elements, ba is not the same as b and a, nor is flesh fire and earth (for when these are separated the wholes, i.e. the flesh and the syllable, no longer exist, but the elements of the syllable exist, and so do fire and earth)' (1041b12–16).

2. Since a whole, which is one not as a heap, but as a syllable, is not identical to its elements, the whole contains 'something else' besides the elements. The 'something else' accounts for the difference between the whole and the elements. Here is how Aristotle puts it:

[6] Commentators do not agree on what the main conclusion of the passage is. For example, according to Morrison (1996: 196) the passage proves that 'in the case of material objects, substance is form'. But Asclepius (*In Met.* 451.17–18, ed. Hayduck 1888) thinks that the point of the passage is that the form is not an element, nor composed of elements. Similarly, Menn (2001: 127) thinks that the argument in Z.17 is not that the substance is form, but that the substance is neither an element, nor composed out of elements.

> 'Since that which is compounded out of something [i.e. elements] so that the whole is one, not like a heap but like a syllable, [is not its elements], … [that which is compounded, e.g.] the syllable, then, is something not only its elements (the vowel and the consonant) but also something else, and the flesh is not only fire and earth or the hot and the cold, but also something else' (1041b11–19).

3. The 'something else' is not an element. If the 'something else' were an element, then granted that the elements are not identical to the whole we would have to posit yet another 'something else', which accounts for the difference between the whole and these elements, and so *ad infinitum*. In Aristotle's words:

> 'If, then, that something must itself be either an element or composed of elements, if it is an element the same argument will again apply; for flesh will consist of this and fire and earth and something still further, so that the process will go on to infinity' (1041b19–22).

4. If the 'something else' consists of elements, it consists of more than one element. It does not consist of just one element otherwise it would be identical to that element:

> 'But if it is [composed of elements], clearly it will be [composed] not of one but of more than one (or else that one will be the thing itself)' (1041b22–3).

I agree with Koslicki (2006: 719 n. 14) that this is an expression of a mereological principle, which Simons (1987: 28) calls the Weak Supplementation Principle (WSP): if *x* is a proper part of *y*, then there is a *z* such that *z* is a proper part of *y* and *z* is disjoint from (i.e. does not share parts with) *x*.[7,8] I will explain the implications of this principle in the next sections of the article.

5. The 'something else' does not consist of many elements. Aristotle puts it briefly:

> 'But if it is [composed of elements], … again in this case we can use the same argument as in the case of flesh or of the syllable' (1041b22–25).

It is not easy to guess how we are supposed to 'use the same argument'. This is how I see it: If the 'something else' consisted of many elements, then the 'something else' would be either a heap or a whole.[9] If the 'something else' were a heap, then granted that the elements are not identical to the whole we would have to posit yet another 'something else', which accounts for the difference between the whole and all these elements (among which are the initial elements and the elements of the 'something else'), and so *ad infinitum*. If the 'something else' were a whole, then granted that the elements are not identical to the whole we would have to posit yet another 'something else', which accounts for the difference between the 'something else' as a whole and its elements, and so *ad infinitum*.

6. The 'something else' is a principle (cause, substance, nature):

> 'But it would seem that this 'other' is something, and not an element, and that it is the cause which makes this thing flesh and that a syllable. And similarly in all other cases. And this is the substance of each thing (for this is the primary cause of its being); and since, while some things are not substances, as many as are substances are formed in accordance with a nature of their own and by a process of nature, their substance would seem to be this kind of 'nature', which is not an element but a principle' (1041b25–31).

7. Aristotle ends his argument with the definition of 'element':

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[7] Koslicki (2006) is not the only one who thinks that Aristotle is committed to WSP. Corkum (2013: 802) thinks that Aristotle endorses WSP with respect to individuals composing a kind.

[8] The wording of the passage at 1041b22–3 apparently supports a weaker principle: if *x* is a proper part of *y*, then there is a *z* such that *z* is a proper part of *y* and *z* is not identical to *x*. (This was pointed out to me by an anonymous referee.) However, the context of Z.17 suggests that the passage should be read as entailing a stronger principle. When Aristotle says here that a thing is composed of more than one element, he means that the thing is composed of at least two separate (disjoint) elements. This interpretation is justified by analogy with the previously used examples of flesh, which consists of fire and earth, and the syllable *ba*, which consists of *a* and *b*.

[9] The possibility that the 'something else' itself could be a whole is pointed out by Morrison (1996: 203).

> 'An element, on the other hand, is that into which a thing is divided and which is present in it as matter; e.g. a and b are the elements of the syllable' (1041b31–33).

8. The main conclusion of the passage, albeit suppressed, is that the 'something else' is the form of the whole. This is so, because the 'something else' is a cause and a principle and it is not present in the whole as matter, and what is a principle and is not present in the whole as matter is the form of the whole. At Z.17, 1041b7–9 Aristotle states that the cause and the substance is the form:

> 'Therefore what we seek is the cause, i.e. the form, by reason of which the matter is some definite thing; and this is the substance of the thing.'

3. An Alternative Reading of Z.17, 1041b11–33: the Form Is Not a Proper Part

According to my reading, the passage at Z.17 entails that the form is not a proper part. The reason for this is disappointingly simple. Aristotle talks about the division of a whole into elements: 'An element … is that into which a thing is divided' (Z.17, 1041b31). According to this division, only elements are parts of the whole and nothing else is a part. The way of division determines what parts there are. One cannot divide something into *n*-parts and then assume that there is an *m*-part as well. For example, one cannot divide Socrates into bodily parts and then assume that his rationality is a part of Socrates as well. Likewise, one cannot divide *ba* into *a* and *b* and take the specific order of the letters as an additional part of *ba*, nor can one divide flesh into fire and earth and take the specific flesh-forming mixture as yet another part of flesh. If one did that, one would commit a category mistake, which would then lead to the regress mentioned above.

We owe the phrase 'category mistake' to Ryle (1949). There is discussion in the literature on what Ryle meant exactly by 'category mistake'.[10] The most comprehensive account of Ryle's concept of category mistake is provided by Goldwater (2018), who dubs it 'conjunctive-cum-quantificational category mistake' and expresses it in the following logical form: 'there are n things (of one type) and 1 thing (of another type), such that there are n + 1 things' (2018: 342). Let us see how Goldwater applies it to one of Ryle's examples. Suppose a person is watching a game of cricket. He sees a bowler and a catcher, etc., and he is wondering who is contributing to the team-spirit. The spectator sees that there are *n* things of one type and then, having witnessed team-spirit, he supposes that there is also one more thing in addition to these. But there is no one in particular who is responsible for team-spirit. As Goldwater puts it, 'To say, "there is a bowler … and a catcher…" is fine, whereas adding "and there is team-spirit…" commits a category mistake' (2018: 346). But why is it so that *n* things and something else cannot be conjoined in a single tally? Goldwater explains that it is because 'conjunctions … impute categorial similarity' (2018: 350), i.e. the conjoined items all are taken to belong to the same category. But, if the 'something else' does not belong to that category, to which *n* things belong, then the conjunction falsely assigns it to the category of *n*-things to which it does not belong. So far so good, but maybe we can admit that these items belong to different categories and then conjoin them. After all, they are all items, objects or entities anyhow. According to Goldwater's interpretation of Ryle, it is a mistake to conjoin such categorially different entities, because these items exist in different ways and there is no all-encompassing category of existence to which all of these items belong: '"exists" is not a generic word encompassing specific differences' (2018: 353).

Goldwater's account suits our purposes nicely. It seems that Aristotle would accept it as well. When the whole is divided into elements, the whole is divided into *n*-parts, which then can be counted and conjoined: $n_1 + n_2 + n_3$ etc. Aristotle assumes that 'in counting we can only count things of the same kind' (Gaukroger 1982: 316). If we are counting sheep, we cannot add a dog, or else we would count the dog as one of the sheep. Counting is addition[11] and we can only add up or conjoin *n*-things, not *n*-things and an *m*-thing. If *n*-things are parts, then the parts are sufficiently similar to make up the whole. Aristotle seems to have the intuition that parts of a whole are 'in *some* sense the same, *as each other*' (White 1971: 187, original emphasis).

Now, when we ask 'How many parts does the whole have?' the response must be 'If the whole is divided into elements, then the parts, which we are counting, are elements and there is such and such a number of elements.' Thus, if upon the division of a whole into elements nothing else is a part besides elements, it

[10] See references in Goldwater (2018).

[11] Aristotle says in *Met.* M.7, 1081b14–17 that 'number must be counted by addition, e.g. 2 by adding another 1 to the one, 3 by adding another 1 to the two, and 4 similarly' (trans. Ross 1928).

is clear that the form is not a part. We cannot add the form to the tally of parts, or else we would count the form as one of the elements. But the form cannot be an element or else regress ensues.

One might object that the question 'How many parts does the whole have?' might be answered differently. One might count not only elements, but anything that can be differentiated within the whole. One might count entities that then would include elements and the form. But if we can only count things of the same kind, it would turn out that being is a *summum genus* to which both elements and the form belong. However, for Aristotle being is not a genus (οὐ γὰρ γένος τὸ ὄν, *A.Po.* B.7, 92b14, ed. Ross 1964). Entities are in different ways, i.e. being is ambiguous and therefore does not comprise different modes of being as its species. The way the elements are differs from the way the form is – elements are quantitative entities, but the form is not (see section 5). Thus, due to their differing ways of being elements and the form cannot be conjoined, and the form cannot be counted as another part alongside elements.

I am not saying that the form always fails to be a part of the whole. I am merely saying that if the whole is divided into elements, then the form is not a part. I admit that there is a division according to which the form could be a part – a division of a whole into form and matter (see section 5).

It has to be noted that, if matter and form are both *abstracta* (unlike elements), then no category mistake has been committed. For then there are two abstract parts, i.e. two *n*-parts, into which the whole is divided and which can be counted and conjoined. The mistake results only if matter is understood as a plurality of elements or something element-like, and the form as something abstract.

But perhaps form and matter cannot belong to the same category (say, *abstracta*) on pain of regress. If one reads Aristotle's statement that the 'something else' cannot be an element as prohibiting the 'something else' to be an entity of the same category as the other entities besides the 'something else', then regress ensues – regress threatens whenever all the entities that are supposed to compose a whole belong to one and the same category (Koslicki 2006: 723, see section 4).

Now we have a dilemma: If form and matter belong to the same category, then there is no category mistake, but regress ensues. But, if form and matter belong to different categories, then no regress ensues, but then we have read Aristotle has having committed a category mistake.

I think that we should reject the first horn of the dilemma. It is not the case that any conjunction of parts belonging to the same category leads to a regress. Regress only ensues for items like elements, since in the case of elements (unless they compose a heap) there is 'something else', which accounts for the difference between the whole and the elements. If the 'something else' is taken as an element, then there is a need for yet another 'something else', which accounts for the difference between the whole and these elements and so on. However, no regress occurs in the case of form and matter, since the whole is identical to form and matter – the whole does not contain 'something else' besides form and matter, viz. there is no further 'something else', which accounts for the difference between the whole *and* form and matter.

Another reason for not taking the form as a part in the same sense as elements are parts is that Aristotle seems to endorse WSP with respect to elements. WSP has the following property (pointed out by Simmons 1987: 28): WSP is satisfied in a model, where two distinct wholes are made up of the same proper parts. In line with the model, the syllable *ba* and the different syllable *ab* are made out of the same letters, *a* and *b* (see **Figure 1**).

WSP is satisfied in this model, since each proper part is a supplement of the other. The model rules out the overlapping of parts, but it does not rule out the overlapping of wholes. This model illustrates nicely the role of the 'something else'. As it is manifest in the model, the letters, *a* and *b*, are there as parts of the

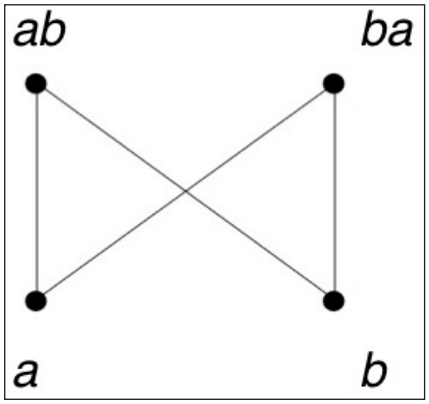

Figure 1: A model satisfying WSP.

syllable *ba* and of *ab*, but there is also 'something else', which accounts for the difference between *ab* and *ba*. The 'something else' is not another proper part, i.e. another dot in the lower region of the model; rather, it is the arrangement of the letters. It seems that Aristotle would accept the model and the idea that at least in some cases distinct wholes are made up of the same proper parts.[12] And it seems that this idea is behind the distinction between heaps and wholes: both have the same parts, but not in the same order.

If the 'something else', i.e. the form, were another proper part, then, since WSP satisfies a model where distinct wholes are made up of the same proper parts, WSP would allow for another regress, which parallels the regress in Z.17, 1041b19–22:

1. Let us grant that if a whole *s* differs from its elements, then a form *f* is present in the whole *s* but not in the elements.
2. Let us assume that the form *f* is a proper part of the whole *s* besides the elements.
3. WSP allows for the possibility that the form *f* and the elements make up different wholes, *s* and *c*.
4. If the wholes (*s* and *c*) differ, there must be something, say another form *f′*, whereby they differ.
5. If this form *f′* is a proper part of one of the wholes (say, *c*), then it is possible that this form *f′*, and the initial form *f* and the elements make up different wholes, *c* and *c′*, and so *ad infinitum*.

This regress is, of course, only a possibility, and not a necessity, since WSP does not require (but only allows) that distinct wholes be made up of the same proper parts. If a whole does not differ from its parts, then any wholes composed of these parts are identical, and no regress ensues.

4. Koslicki's View: the Form Is a Proper Part

Koslicki (2006) defends mereological hylomorphism and opposes anti-mereological readings of Z.17, according to which Aristotle argues in the relevant passage that the 'something else,' i.e. form, cannot be a further part, otherwise some kind of regress ensues. Koslicki (2006: 720; 724) argues that the passage at Z.17 does not provide reasons against taking form to be a part of the whole; rather, the passage when combined with certain textual and conceptual considerations yields the thesis that form is a proper part of the whole. Koslicki thinks that Aristotle himself would subscribe to mereological hylomorphism (2006: 725).

Koslicki (2006: 725–727, cf. 2008: 179–181)[13] gives her argument for the thesis that form is a proper part drawing on evidence from the passage at Z.17 and adding an external assumption that matter is a part of the matter/form-compound. The argument runs as follows:[14]

1. The matter of a matter/form-compound is numerically distinct from the matter/form-compound. (This is the conclusion of what Koslicki calls a Leibniz's Law-style argument stated at Z.17, 1041b12–16, where Aristotle argues that the elements can exist when severed from the compound, but the compound ceases to exist, when elements are severed from the compound. In other words, since elements and the compound have different persistence conditions, the elements are numerically distinct from the compound.)
2. The matter is a part of the matter/form-compound. (This is an external assumption drawn from Δ.25, 1023b19–22.)
3. The definition of proper parthood: *x* is a proper part of *y* $\equiv_{\text{def}}$ *x* is a part of *y* and *x* is not identical to *y* (Koslicki 2008: 16).
4. The matter is a proper part of the matter/form-compound (from 1, 2, 3).
5. WSP: if *x* is a proper part of *y*, then there is a *z* such that *z* is a proper part of *y* and *z* is disjoint from *x*. (Evidence for Aristotle's endorsement of WSP is drawn from Z.17, 1041b22–23.)
6. The matter/form-compound has another proper part besides its matter (from 4, 5).
7. The matter/form-compound has an immaterial proper part, i.e. the form (from 6).

[12] At *Met.* Δ.6, 1016b11–16 Aristotle points out that the parts of a shoe can be put together at random in a heap or the same parts can be put together so that a shoe results. At GC A.2, 315b14–15 (ed. Mugler 1966) Aristotle says that tragedy and comedy come to be from the same letters.

[13] Koslicki gives a similar argument in her book *The Structure of Objects* (2008: 179–181), with the aim to defend a neo-Aristotelian version of mereology of which the core is the thesis that the structure (form) is a proper part of a material object (matter/form-compound).

[14] My reconstruction of Koslicki's argument is similar to Donnelly's (2011: 228).

In addition to the argument, it is necessary to bring out several points, which Koslicki endorses:

1) Koslicki takes 'elements' as synonymous with 'matter', as she repeatedly uses the phrase 'elements or matter' (2006: 715, 725, 726). Moreover, Koslicki (2006: 723) assumes that matter belongs to the ontological type or category 'element' (and form belongs to 'principle').

2) Koslicki does not take 'element' as synonymous with 'part' (2006: 723), viz. there is a part, i.e. form, which is not an element.

3) Koslicki stresses that, according to Δ.25, 1023b19–22, Aristotle takes form and matter (or elements) to be part of the compound 'according to a single sense of "part"' (2006: 724, 727).

4) Koslicki distinguishes 'kinds of part' from 'senses of 'part'' (*pace* Haslanger 1994). Elements are parts in the same sense of 'part' as the form is a part, but elements are parts of a different kind from the form: 'the "something else" in question, that is, form, which is present in wholes but absent from heaps, must belong to a distinct ontological category, that is, different from that of elements or entities which are composed exclusively of elements' (2006: 722). A genuine whole consists of different kinds of parts in the same sense of 'part', in contrast to heaps, which consist of parts of the same kind in the same sense of 'part'. Both elements and form are parts, namely they do not differ mereologically, but elements and form are different kinds of part, namely they differ ontologically – they are not of the same ontological kind or category.

5) Koslicki thinks that for Aristotle the regress that ensues in Z.17 does not result from taking the 'something else' as a part; the regress threatens only on the condition that the 'something else', i.e. form, is taken to be 'of the same ontological kind' as the elements (2006: 723). Koslicki sees the categorial distinction between form and elements as the key to stopping the regress. According to Koslicki, Aristotle's main point is that 'genuinely unified wholes must be not only mereologically complex but also *ontologically complex*; …they must consist of entities which belong to distinct ontological categories, namely, form and matter, or principle and element' (2006: 723, original emphasis).

5. Objections to Koslicki's View

Koslicki's argument has earned criticism from contemporary metaphysicians.[15] I will add some considerations, which make Koslicki's argument problematic from the Aristotelian perspective.

The passage at Z.17 is not useful in proving the proper parthood of form, unless the parthood of form and matter is already presupposed. What one can get out of the passage is 1) the fact that elements are parts, 2) the distinctness of the whole and its elements, and 3) the distinctness of elements and form ('something else'). In Z.17 Aristotle is not committed to the view that form and matter are parts or that the whole is a compound of matter and form. Aristotle talks about the division of a whole into elements (not matter and form). If this is a division into parts, then each element is a part. But why should we assume that anything else is a part besides the elements?

Since it is very unlikely that Aristotle (or anyone of the ancients) had a notion of 'improper part', it is possible that not only elements are proper parts, but also matter and form are proper parts. But elements, on the one hand, and matter and form, on the other, are proper parts in different senses of 'proper part'. Let me explain.

At *Met.* Δ.25 Aristotle gives a list of senses of 'part'.[16] Two of these senses are particularly interesting for our purposes:

> 'We call a part, in one sense, the result of any kind of division of a quantity; for what is subtracted from a quantity qua quantity is always called a part of it; as two is called a part of three in a way' (1023b12–15, trans. Kirwan 1971).
> '[A]gain, anything into which a whole, whether a form or something that possesses a form, is divided, or out of which it is composed, as for instance both the bronze (that is, the matter in which the form is) and the angles are parts of a bronze cube, or a bronze ball' (1023b19–22, trans. Kirwan 1971).

[15] Criticism by contemporary metaphysicians (see, e.g. Donnelly 2011, Sidelle 2010) is addressed to Koslicki's argument in the version presented in her book (Koslicki 2008). Since that argument is very similar to the one I am discussing, the criticism may apply to it as well.

[16] The fact that Aristotle distinguishes several senses of 'part' is manifest also in *Met.* Z.10, 1034b32–1035a7.

Here we have two senses of 'part' – let us call them 'quantitative parts' and 'non-quantitative parts'. Elements are quantitative parts, whereas matter and form are non-quantitative parts.

Quantitative parts and non-quantitative parts have different parthood properties. A characteristic property of a quantitative part is that it can be subtracted from the whole, e.g. two can be subtracted from three.[17] Aristotle's commentator, Alexander of Aphrodisias (*In Met.* 423.36–9, ed. Hayduck 1891), explains that the subtraction of a quantitative part lessens the whole. This is also assumed in the *Physics* A.4, 187b34–35: 'every body must become smaller when something is removed from it' (trans. Charlton 2006). Thus, since a quantitative part lessens the whole, it is itself smaller than the whole. Although Aristotle nowhere asserts explicitly that an element is smaller than the whole, it seems clear from the examples in Z.17. Surely, the letter *b* or the letter *a*, which make up the syllable *ba*, is smaller than *ba* and similarly fire or earth, which make up flesh, is smaller than flesh.[18]

It seems that lessening the whole means reducing it in such a way that there is a remainder. If an element is subtracted from several elements, at least one element remains. This is so with quantitative parts in general, e.g. if two is subtracted from three, the remainder is one. This idea seems to be assumed also when Aristotle explains in the *Physics* A.7, 190b7 that some things come to be 'by subtraction, as a Hermes comes to be out of the stone' (trans. Charlton 2006). Hermes is the remainder that is left when the redundant parts are taken away. If there is no remainder, we cannot say that the whole is lessened or that a part is smaller than the whole.

Now, what about matter and form? Matter and form cannot be subtracted from the whole as something smaller than the whole, since matter and form are coextensive[19] with the whole. As Aristotle says at H.6, 1045b18–19, 'the proximate matter and the form are one and the same thing, the one potentially, and the other actually' (trans. Ross 1928). Since neither form, nor matter is smaller than the whole, to state unqualifiedly that upon subtraction there is a remainder is problematic.[20]

Upon the subtraction of matter, the whole is annihilated entirely,[21] and the form is gone along with the whole. The form does not exist apart from the whole.[22] Even if the form does remain somehow (e.g. in other wholes, which have the same form), the form does not remain in the same way as an element does, i.e. as an independent item that is left over after the subtraction of matter.

Does the subtraction of form leave a remainder, i.e. matter? There seems to be something left, when the form is taken away, as Aristotle says in the *Physics* Δ.2, 209b9–11: 'when the limit and the properties of the sphere are removed, nothing is left but the matter' (trans. Hussey 2006). However, matter is not a definite thing, it lacks individuality,[23] so matter does not remain in the same way as an element does, which is an individual whole in its own right.

The fact that matter and form are coextensive with the whole (and thus with each other) does not imply that matter and form are identical to the whole (and to each other). Aristotle's assertion that 'the proximate matter and the form are one and the same thing' does not presuppose identity, as there are many senses of sameness and oneness (see *Met.* Δ.6). Matter and form are distinct, since a material whole is distinct from its form: 'things which are of the nature of matter, or of wholes that include matter, are not the same as their essences [i.e. forms]' (Z.11, 1037b4–5). If matter and form are non-identical and if indeed they are parts, they are proper parts. But matter and form are proper parts in a different sense than elements are proper parts. An element is a proper part because an element is smaller than the whole (and thus also non-identical to

[17] Similarly with other quantities: 'the half-line is in the whole, because it might be separated out' (Θ.6, 1048a33, trans. Ross 1928).

[18] The fact that each element is smaller than the whole makes it possible for elements to be counted. One might object that the example of flesh is problematic. The elements of flesh within the flesh lose their countability, in contrast to the letters of a syllable, which do not. The way out of this problem is to acknowledge that the elements of flesh can be separated out and then counted. Their countability is possible because the elements exist as identifiable units after being separated out.

[19] Objects are coextensive if they extend over the same area. Coextensiveness has to be distinguished from overlapping. Objects can be coextensive without sharing parts, e.g. color and surface.

[20] With parts that are smaller than the whole it seems universally to be the case that if a part, which does not extend over the whole, is subtracted, then there should be some part of the whole, which is distinct from the subtracted part (see Donnelly 2011: 230).

[21] Donnelly (2011: 231) illustrates this point vividly with the example of a statue: 'I cannot break off the lump from the statue. Moreover, if I pick up the entire lump and toss it to the floor, then no remaining part of the statue is left on the mantel'.

[22] One might argue that the form can exist apart from the whole. For instance, at Z.9, 1034b12–13 it is stated that 'the matter and the form must always exist before' (trans. Ross 1928). However, this does not imply that the form must exist before as an independent item separate from any whole. The form must merely exist within some whole or other.

[23] In *Met.* Z.3, 1029a20–1 Aristotle defines 'matter': 'By matter I mean that which in itself is neither a particular thing nor of a certain quantity nor assigned to any other of the categories by which being is determined' (trans. Ross 1928).

the whole), whereas matter and form are proper parts because they are non-identical to the whole, but not smaller than the whole.

Thus, Aristotle has distinct notions of 'proper part': (i) *x* is a proper part of *y* $\equiv_{def}$ *x* is a part of *y* and *x* is smaller than *y*, and (ii) *x* is a proper part of *y* $\equiv_{def}$ *x* is a part of *y* and *x* is not identical to *y*. The first definition applies to elements, whereas the second applies to matter and form.

Let us go back to Koslicki's argument and go through it step by step to see what is problematic about it.

1. States that the matter of a matter/form-compound is numerically distinct from the matter/form-compound. Aristotle would agree, but he does not endorse (1) on the grounds that the elements are numerically distinct from the whole (as he argues in Z.17), since he does not say that elements are matter, but only that elements are present in the whole as matter. If it were assumed that the compound of elements can be regarded as a matter/form-compound, then the elements that are present in the whole as matter would be the matter of the compound. But this assumption is not made here, since Aristotle regards the whole as a compound of elements, and to mention 'matter' here is out of place. That Koslicki takes 'elements' as synonymous with 'matter' does not make a difference at this point, but it will make a difference later on.
2. States that the matter is a part of the matter/form-compound. Again, Aristotle would accept this claim, but only in the context of discussing matter/form-compounds. But Aristotle does not accept (2) in the context of discussing compounds of elements, and in such a case it is false to take 'matter' as synonymous with 'elements'. Elements (the total plurality) are not part of the compound of elements. Each element is a part, but there is no part containing all the elements.
3. Gives a definition of proper parthood: *x* is a proper part of *y* $\equiv_{def}$ *x* is a part of *y* and *x* is not identical to *y*. This is fine in so far as Aristotle accepts it in certain cases. However, note that in certain other cases Aristotle seems to accept a stronger definition of proper parthood: *x* is a proper part of *y* $\equiv_{def}$ *x* is a part of *y* and *x* is smaller than *y*.
4. Asserts that the matter is a proper part of the matter/form-compound. (4) follows from (1), (2), (3), if we are dealing with a matter/form-compound that is divisible into matter and form. Such parts are proper in the sense that each of them is non-identical to the compound. But the inference to (4) does not go through, if we are dealing with a compound of elements that is divisible solely into elements. Such parts are proper in a different sense – each of them is smaller than the compound. But all of the elements taken together as a plurality are not a proper part in any of the senses, since they are not a part of the compound of elements.
5. Asserts WSP: if *x* is a proper part of *y*, then there is a *z* such that *z* is a proper part of *y* and *z* is disjoint from *x*. Now, it is a good question whether it is legitimate to apply WSP here. Sidelle (2010: 373–374) argues that it is not legitimate to do so. Sidelle thinks that 'the strong intuition in favour of WSP' comes from taking 'proper part' 'as a part which takes up less than the full volume occupied by the whole' (2010: 373). But in so far as matter is concerned, it has only been shown that it is a part that is non-identical to the whole. According to Sidelle, Koslicki's argument trades on the ambiguity of 'proper part': (4) appeals to a different notion of 'proper part' than (5), namely, WSP presupposes that a proper part is smaller than the whole, but in (4) a proper part is merely non-identical to the whole. WSP holds in the case of parts that are smaller than the whole, but WSP fails to hold in the case of parts that are merely non-identical to the whole. Thus, if matter is a part that is non-identical to the whole, then WSP does not hold, but, if WSP holds, then matter is no longer a proper part of the whole.

   If Sidelle is right, then WSP holds only with respect to elements (and not with respect to matter and 'something else'). We have to admit that, if Aristotle indeed ever endorses WSP, it occurs when he talks about elements at Z.17, 1041b22–23, where it is stated that the whole is not made out of one element, but more than one. Furthermore, if Sidelle is right, then there is no uniform set of principles for all senses of 'part', since WSP holds only in some cases. *Prima facie* it seems that Aristotle would subscribe to this, since he has these distinct senses of 'proper part'. For present purposes, I simply leave this possibility open, since a proper discussion would take us too far.

   In fact, there might be a different possibility. Sidelle's 'strong intuition in favour of WSP' might be wrong. If we admit that matter needs 'something else' to constitute the whole and matter is disjoint from the 'something else', then WSP applies.[24]

[24] This observation was pointed out to me by an anonymous referee.

Nevertheless, one thing is true for sure: WSP cannot be applied to conjoin items which count as parts according to different senses of 'part', namely, if something is a proper part in one sense of 'part', then there must be another proper part in the same sense of 'part', i.e. there must be a remainder that cannot be a proper part in a different sense of 'part'.[25] Therefore, if elements and form cannot be conjoined, WSP, which applies to the elements, does not apply to the 'something else' in the same sense in which it applies to the elements. Thus, WSP cannot be used to infer the proper parthood of form in cases where the whole is divided into elements.

6. Is derived from (4) and (5), and it states that the matter/form-compound has another proper part besides its matter. (6) is true to the division of a whole into form and matter, where it is already presupposed what this kind of division yields. But (6) is false with respect to the division of a whole into elements, because the compound of elements has no other proper part besides its elements.

   Furthermore, remember what assumptions lay behind Koslicki's argument: Koslicki takes 'matter' and 'elements' to be synonymous; elements and the additional non-elemental part are parts in the same sense of 'part', but they belong to different categories.

   If the elements and a part that is not an element are parts in the same sense (despite my insistence that they are not), then by conjoining them a category mistake has been committed, since the elements and the additional part belong to distinct categories, but items that belong to distinct categories cannot be conjoined. If they are conjoined, then they are treated as if they belonged to the same category (a higher category such as 'being').[26] But they do not belong to the same category, since they are not sufficiently similar to make up one whole. Elements and form are in different ways, and being is not a category.

7. Which states that the matter/form-compound has an immaterial proper part, i.e. the form, does not follow, if Aristotle is discussing a compound of elements, or else a category mistake has been committed. Does the same objection apply, if one decouples Koslicki's argument from Z.17 and deals with the matter/form-compound (and not with the compound of elements)? *Prima facie* it does not, since it is unclear what other parts a matter/form-compound should have, if not matter and form. However, there seems to be an additional potential problem. If matter and form have to be sufficiently similar to be combined, then they have to be regarded as one type of entity, say as *abstracta*. But what type of entity are *abstracta*? Are *abstracta* material or immaterial? Well, they cannot be material, or else the form is material, which is absurd. Thus, they are immaterial, but then matter is immaterial. This is awkward, but perhaps as something abstracted matter is indeed somehow immaterial. To properly answer this question, one needs to study Aristotle's theory of abstraction, which would be a task we cannot hope to accomplish in this current investigation. In any case, if Koslicki holds on to the belief that matter and form are entities of different categories, then the threat of category mistake still looms large.

   There is one last point I want to make (or a question I want to pose). Even if it still somehow could be the case that material objects have immaterial parts, then, it seems, one should also allow that immaterial objects have material parts. For instance, species and genera (assuming that they are non-extensional) should have individuals as material parts. Is this plausible?

6. Conclusion

I have argued that in line with Z.17, 1041b11–33, the form is not a proper part, since according to the sense of 'part' that is at issue in this passage the whole is divided into elements, not into elements *and* the form. It is important to notice that which notion of 'part' is at issue in a given passage depends entirely on the way the whole is divided. When a whole is divided into elements, the form is not a proper part alongside elements, namely, the form is not a proper part in the same sense as elements are proper parts, but the form could be a proper part in the same sense as the matter is a proper part, if 'matter' and 'elements' are not synonymous. I have objected to Koslicki's argument on the grounds that she takes form and elements to be parts in the same sense of 'part', which, as I have argued, involves a category mistake. The conjunction of

[25] Koslicki (2007: 134–135 n. 11) herself acknowledges this restriction: 'If the sense of "part", according to which the matter is part of a compound, were distinct from the sense of "part", according to which form is part of the compound, Aristotle would be committed to a double violation of (WSP), viz., a compound which is twice around composed of only a single proper part, viz., of matter in one sense of "part" and of form in another'.

[26] Maybe the tacit assumption that elements and the 'something else' somehow belong to a higher order category is the reason for thinking that WSP, which applies to the elements, also applies in the same sense to the form.

form and elements requires treating these categorically different items as sufficiently similar, i.e. as belonging to the same category, but no such category exists. In brief, the moral of the preceding discussion is this: distinct divisions of a whole must not be conflated and items which count as parts of a whole according to different senses of 'part' cannot necessarily be conjoined without committing a category mistake.

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