

PART-WHOLE METAPHYSICS UNDERLYING ISSUES OF INTERNALITY/EXTERNALITY

Helena De Preester

ABSTRACT

In this article, it is argued that our access to internal/external issues is mediated and enabled by part-whole metaphysics. First, Husserl's distinction between two kinds of parts – pieces and moments – and the way in which they differ is presented, and the relations of foundation by which a whole is constituted are discussed. Next, it is shown that Husserl is unable to uphold the distinction between pieces and moments as soon as truly organized objects are encountered. Consequently, pieces should receive a new status and the idea that wholes made up of pieces have an own kind of law is forwarded. This kind of regularity has to do with the *functional* organization of organized wholes made up of pieces. The article then focuses on an exemplary kind of organized wholes, living beings, and the suspicion is raised that the combinatory form invoked to take into account the wholeness of a living being points to a law proper to the domain of the living. Therefore, an alternative account for the parts and whole of living beings is necessary. This account is prepared by introducing the basic Aristotelian notions of substance and essence. Next, Aristotle's distinction between posterior and posterior parts and wholes is presented. Based on this distinction, a solution is offered for the problem of the law exhibited in the wholeness of living beings. The combinatory form or soul of a living being appears in Husserl's account as a product of the unsatisfactory distinction between pieces and moments. In Aristotle's account, the form of living beings appears as a necessary condition of possibility for taking into account the specific way in which a living being forms a whole and has parts. Moreover, the Aristotelian soul enables us to consider the functional organization of a living being. In the conclusion, a number of implications of part-whole metaphysics for internal/external issues is formulated.

1. Introduction: internal, external, and part-whole metaphysics

What makes it possible to indicate something as 'internal' or 'external' to something else? Of course, to be internal or external is a relational

property. Something is internal or external in relation to something else. The aim of this article is to search for the *conditions of possibility* for assigning the relation of internality or externality between two items.

This will happen in terms of *parts* and *wholes*. Something is called internal in relation to something else if it is *part* of the latter (a whole). If something does not belong to that whole, it is called external to it. That means that we need *criteria* under which something can be considered as included in or excluded from a whole. Thus, the question for the *conditions of possibility* for indicating something as internal or external in reference to something else leads to a *part-whole metaphysics*.

Moreover, it means that our access to internal/external issues is *mediated* by such a metaphysics. To indicate something as 'internal' or 'external' in relation to something else *presupposes* a part-whole metaphysics in which epistemological decisions about relations between parts and between parts and whole are made. The aim of this article is to investigate the part-whole metaphysics that both underlies and enables accessing internal/external issues.

2. Part and whole in Husserl's third *Logical Investigation*

In the third *Logical Investigation* (1901, revised edition in 1922) Husserl introduces the distinction between independent and dependent (or non-independent) parts of a whole. The ideas of 'part' and 'whole' belong to the pure (i.e. *a priori*) theory of objects *as such*, and the pure theory of wholes and parts is a part of Husserl's formal ontology¹. The possible relations between objects (related to one another as wholes to parts, or as coordinated parts of a whole) thus have an *a priori* foundation in the idea

¹ Cf. Husserl's *Introduction* to the third *Logical Investigation*. Formal ontology deals with ideas belonging to the *category* of objects as such. Examples of such ideas are – next to part and whole – subject, quality, individual, species, genus, relation, collection, unity, number, series, ordinal number, magnitude, etc. Formal ontology equally deals with the *a priori* truths that belong to those ideas. Formal ontology differs from *regional ontologies*, which deal with ideas belonging to a *particular* region of 'what is', such as physical object, living animal, and spirit. Those ideas are no longer purely formal, but material. That the part-whole discussion is part of *formal* ontology, and not of a *material* ontology, indicates Husserl's *epistemological* concern.

of an object whatsoever (*überhaupt*).

A part is anything that can be distinguished in an object. Husserl calls non-independent parts *moments* and independent parts *pieces*. In the case of pieces, one is entitled to talk of *articulated structure*, because the parts are not merely disjoined from each other, but also relatively independent. Very often, most attention is paid to Husserl's innovative concept of moment, whereas the concept of piece is considered of little interest to the philosopher:

Pieces and their relationships to wholes are not very important philosophically. Their greatest value is to serve as a foil, as a contrary, polar concept allowing the concept of moment to be established. (Sokolowski, 1977: 98)

Pieces and moments are distinguished on the basis of the ability of being separately presented. Although the psychological notion of 'presentation' is invoked here, the distinction pertains to the object itself, not to the subject presenting the object or the part.²

It is self-evident, in regard to *certain* contents, that the modification or elimination of at least *one* of the contents given with them (but not contained in them), must modify or eliminate those contents themselves. In the case of *other* contents, this is not at all self-evident;

² "Since each part can be made the specific object (or, as we also have frequently said, 'content') of a presentation directed upon it, and can therefore be called an object or 'content', the distinction of parts just mentioned points to a distinction in objects (or contents) as such." (LU III: 5; numbers in roman refer to the number of the investigation, page numbers refer to the English translation). The distinction is based on Berkeley, but Husserl adds a supplement: "But one needs here a supplementary distinction between the *phenomenological* moments of unity, which give unity to the experiences or parts of experiences (the real phenomenological data), and the *objective* moments of unity, which belong to the *intentional objects and parts of objects*, which in general transcend the experiential sphere." (LU III: 8-9) More clearly, he admits that whatever part (piece as well as moment) is presented *in a context*. "Isolability means only that we keep some content constant in idea despite boundless variation (...) of the contents associated with it, and, in general, given with it. This means that it is unaffected by the elimination of any given arrangement of compresent contents whatsoever." (LU III: 9) For more details about and comments on the ability or inability of separate presentation, cf. Sokolowski (1977) and Lampert (1989).

it is not absurd to suppose them remaining unaffected despite the modification or elimination of all coexistent contents. (LU III: 6)

In the first case, the parts can *only* be conceived as part of a more comprehensive whole. In the second case, what appears as a part is also possible without the accompanying parts, and thus as not included in a whole. The former kind of parts are *moments*, the latter *pieces*. An example of a moment is visual quality or color, which is dependent on extension. No color is possible without extension³.

The dependency of a moment on a coexistent phenomenon is called self-evident, necessary and functional. Husserl admits that *pieces*, once separated from their whole, do change in *some* way, but he denies that this change involves a self-evident, necessary and functional dependency on a coexistent phenomenon (cf. LU III, §3). Drummond (2003) rightly points to the resemblance with Aristotle's claim. A finger separated from the living body is still a finger, but we are no longer entitled to call the separated finger a finger in the sense it had before, when it was part of the living body (this is called the case of homonymy).

However, the point Husserl is interested to make is that there is a *continuity* in the properties belonging to the part as incorporated into the whole and the part as separated. The leg of the table is separately presented with the same sensible and material properties that it had as a part of the table, (...), but apart from its functional property as supporting the tabletop. The severed hand is presented with the same sensible and 'elemental' properties it had when connected to the body and alive, but it is no longer a hand which can 'fulfill its work' (*Metaph.* 1036b 31). (Drummond, 2003: 58, italic added)

For Husserl, once a part is separated from its whole, the continuity in sensible and material properties is sufficient to consider the part as a piece. The functional alteration does not seem to matter much and does not point to a certain dependency of the independent piece on something else.

³ The same is valid for the reverse direction: no extension is possible without a certain visual quality. It is a case of *reciprocal* dependency, or reciprocal *foundation* (cf. further). Dependency is, however, not always reciprocal. A judgment, for example, is dependent on a presentation, but not vice versa.

The dependency relation of a moment on another component phenomenon (another part of the whole or the whole itself) is *a priori* or *essential*. In the same vein, the *independency* of a piece is also rooted in its essence.

In the 'nature' of the content itself, in its ideal essence, no dependence on other contents is rooted; the essence that makes it what it is, also leaves it unconcerned with all other contents. (LU III: 9)

Factually, a piece may be given together with another content, according to *empirical* rules. Qua *essence* or *ideally*, however, the part is independent. That means that the essence of a piece, *i.e. considered in a priori fashion*, requires no other essence interwoven with it in order to be what it is. Husserl attaches a lot of importance to this ideal necessity of the ability and inability of respectively pieces and moments to exist by themselves.

This is by essence such as to be given in our consciousness of *apodictic self-evidence*. (...) It is in the first place obvious in general that objective necessity is as such tantamount to a *being that rests on an objective law*. (...) a of essence, a non-empirical, universal and unconditionally valid." (LU III: 12)⁴

For example, the species of Colour presupposes the existence of contents of another species, such as Extension. With regard to the *whole*, moments are governed by a law of essence such that they can only exist as parts of more inclusive wholes (of a certain appropriate species). *For pieces, such a law is lacking: they may – but this is not necessarily the case – be part of a more inclusive whole.*

Two points are important for what follows. First, the distinction between pieces and moments runs parallel with the absence or presence of essential laws. Relations between moments or between moment and

⁴ Further in the text, Husserl offers another characterization of the ideal laws governing moments. "The concept of non-independence accordingly amounts to that of ideal *in unified combinations*. If a part stands in an ideally law-bound and not merely factual combination, it *must* lack independence; since such a law-bound combination merely means that a part whose pure essence is of one sort, can exist lawfully only in association with certain other parts of these or those suitable sorts." (LU III: 18)

whole are governed by *essential* laws; relations between pieces or between pieces and whole are merely regulated by *empirical* laws. Second, the *functional* alteration that occurs when a piece is separated from its whole, is not sufficiently important in order to consider the possibility of an *essential* connection between pieces.

3. Relations of foundation

It is due to the mutual penetration or the intimate fusion of moments that a whole lifts off *as* a (relatively isolated) whole. We have seen that it is due to a law of essence that a moment cannot as such exist except in a more inclusive unity in which it is connected with at least one other part. The specific terminology Husserl adopts here is *foundation* (*Fundierung*) of a part by another part. The former part *needs to be supplemented by* (*ist ergänzungsbedürftig durch*) the latter part. To be non-independent means to be in need of supplementation. Foundation can be one-sided or reciprocal (cf. also footnote 3).

The notion of piece can be negatively determined by means of the notion of foundation: in the whole of which the piece is a part, there are no other parts upon which the piece is founded. Thus, if two parts are independent parts (pieces) of a whole, they are also independent relatively to one another. (cf. LU III: 27)

It is clear that pieces stand in a relation radically different from the relation of foundation between moments. Moments of a whole and the way in which they are founded into one another are governed by ideal laws⁵. For example, brightness cannot be immediately blended with surface, it must first be mediated by color.

⁵ Foundation can be immediate or mediate. "If A_0 is immediately founded on B_0 , but mediately on C_0 (in so far as B_0 is immediately founded on C_0), it holds universally and purely in virtue of essence that an A is in general immediately founded on a B , and mediately upon a C . This results from the fact that if an A and a B are associated at all, they are so immediately, and again that, if an A and a C are associated, they are only mediately associated. *The order of mediacy and immediacy is based by law on the pure Genera involved.*" (LU III: 28) For the order of mediacy and immediacy, cf. the example of surface, color and brightness in the body of the text.

There is a rigid, *a priori* rule governing the 'distance' and the mediations between brightness and surface of extension; moments cannot be haphazardly blended with one another. (Sokolowski, 1977: 97)

In contrast, an extension, cut into pieces, does not show such an *intrinsic, ideally governed* progression of division. The distance of pieces from their whole does not reveal a necessary structure or organization.

There are diverse possible divisions in which the same part comes up, sometimes earlier, sometimes later, so that we have no temptation to accord any privilege to one part over another as regards the way in which it is contained in the whole. The descending order of divisions here corresponds to no fixed, factually determined gradation in the relation of parts to wholes. (...) But in themselves the remotest of these parts are no further from the whole than the nearest. (...) We could *begin* with each division without violating an intrinsic prerogative. (LU III: 31)

The possibility to divide an extended whole into *pieces*, without the necessity to follow a certain (ideally governed) order, seems to point to the absence of *intrinsic organization*. Organization is caught in terms of ideal laws, and there is no room left for taking into consideration regularity of *factual* organization.

A finger is a piece of the hand, which in turn is a piece of the body, but there is no necessity of mediating the distance between finger and body by the hand; I can consider a finger an immediate part of the body itself. (Sokolowski, 1977: 97)⁶

⁶ Something similar happens in the case of perception and its factual organization. According to Husserl, the perceived thing is a synthesis of profiles, and this process unfolds as an instance of whole-moment logic. However, Sokolowski (1977) points to the fact that the *actual* sequence of profiles is a case of piece-whole logic. "An arbitrariness and separability are possible here that could not be found in the logic of moments and wholes. Consequently, no *a priori*, apodictic, necessary phenomenological analysis of this sequence is possible. This is one of the reasons why Husserl gives so few examples of 'concrete' phenomenological analysis. Once one leaves the realm of general, formal description and enters into particular sequences of experience, one leaves the necessary logic of moments and wholes and enters the factual, contingent structure of pieces and

Of course, this is partly due to the fact that Husserl's space of reasoning is restricted here to formal ontology. Here, Husserl is unable to take the factual organization of living beings into account. Therefore, we have to enter the field of regional ontology (in this case, the regional ontology of animals or living beings). Unfortunately, the conceptual distinctions and the rules governing parts and wholes are set *before* we enter the field of organized, living beings. For Husserl, there is a fundamental distinction between the empirical and the essential or the ideal. This fundamental distinction will not allow him a bottom-up influence from the empirical, regional-ontological to the ideal formal-ontological. The case of the living, however, may render the piece-moment distinction shaky. Attention for the factual functional organization of living beings may also shed light on the reason why Husserl neglects the functional alteration of pieces.

4. The idea of a whole and the phenomenon of intimacy

The privileging of the ideal is also noticeable in Husserl's treatment of the idea of a whole. Husserl says that the notion of whole was *presupposed* in his account of pieces and moments. Moreover, it is possible to *dispense* with the notion of whole in all cases, because it is possible to substitute for it the *coexistence* of the parts. Consequently, the concept of whole can be defined by way of the notion of foundation. It is redundant, because the concept of foundation provides the coherence of the parts.⁷

wholes." (Sokolowski, 1977: 103) Thus, once the empirical sequence of perception is entered, the field of the *a priori* must be left.

⁷ As a consequence, Husserl neglects the particular status or function of the *boundary*. According to Husserl, a boundary is a moment, not a piece. Husserl only mentions boundaries in the case of two adjacent parts, in the sense of a so-to-say geographical boundary. "The division of a whole into a plurality of mutually exclusive pieces we call a *piecing* or *fragmentation* (*Zerstückung*) of the same. Two such pieces may still have a common identical 'moment': their common boundary, e.g., is an identical 'moment' of the adjoining pieces of a divided continuum." (LU III: 29) Lampert (1989) partly redeems this negligence and mentions boundaries in the case in which a field 'shrivels up' into an independent part (cf. the method of variation, i.e. the modification or elimination of coexistent contents, in order to see whether a part is a piece or a moment). A field that

By a Whole we understand a range of contents which are all covered by a *single foundation* without the help of further contents. The contents of such a range we call its parts. Talk of the *singleness of the foundation* implies that *every content is foundationally connected, whether directly or indirectly, with every content. This can happen in that all these contents are immediately or mediatey founded on each other without external assistance, or in that all together serve to found a new content, again without external assistance.* (LU III: 34)

In other words, a whole results when a part's demands for supplementation are met. When a founded part's demand for supplementation is satisfied by another (founding) part, a whole results (cf. Lampert, 1989: 205). It is the part's demand for supplementation which sets in motion a series of syntheses. Such a demand by the part makes so much 'cognitive noise' that consciousness cannot rest until it has reached the relations that a part has with other parts.

The replacement of the notion of whole with the notion of founding relation means that Husserl does not need a peculiar *form* for every whole, in the sense of a specific 'moment' of unity which binds the parts. At least, he does not need a unifying factor in the case of *moments*. For extended wholes, which can be *pieced*, a unifying moment is obvious and indispensable *a priori* (cf. LU III: 35). According to Husserl, pieces cannot guarantee of themselves the unity of the whole. Extended wholes, and more generally all wholes that can be pieced, need a *unifying principle*. They are not *necessary* wholes.

Yet Husserl is unable to maintain this position, because he cannot avoid that even the unity of pieces is brought about by foundation. Pieces also found new objects. This kind of unity – a whole founded by pieces⁸

shrivels up into an independent part has to internalize its external relations, and its outer boundaries have to be marked off from within. If the boundaries remain intact during the process of shriveling up, it is an independent part. Moreover, Lampert (1989: 205) connects the notion of boundary with the concept of foundation. "An object has boundaries if each of its parts passes over into and sets in relief the other parts of *that* object, but *not* the parts of *other* objects."

⁸ Husserl wants to distinguish such wholes from aggregates. "The objects themselves [i.e. the 'parts' of an aggregate], being only held together in thought, do not succeed in founding a new content, whether taken as a group or together; no material form of association develops among them through this unity of intuition, they are possibly 'quite

– is nevertheless less strong because less intimate than the intimacy of moments, founded on each other.

But what does this intimacy mean?

Such ‘intimacy’ consists simply in the fact that unity is here [in the case of moments] not engendered by a novel content, which again only engenders unity since it is ‘founded’ on many members separate in themselves. If one calls such a content ‘unity’, then unity is indeed a ‘real predicate’, a ‘positive’ ‘real’ content, and other wholes have, in *this* sense, no unity, and we shall not even be able to say that their own moment of unity is unified with each of the united members. (LU III: 37)

This conceptual consequence is for Husserl unacceptable, and he prefers to speak of unities and wholes wherever there is a unitary foundation. Yet, one might think that the consequence is more than merely conceptual. It may be possible that moments have no peculiar *reason* to make up a whole, unless we consider an ideal law – and thus necessity – as a reason. Pieces, in contrast, do have a unifying factor, and thus a peculiar reason to make up a whole. In a sense, wholes which can be pieced are more ‘real’ or ‘positive’ than wholes made up of moments⁹.

disconnected and intrinsically unrelated.’ This is shown in the fact that the form of the aggregate is quite indifferent to its matter, i.e. it can persist in spite of wholly arbitrary variation in the comprised contents.” (LU III: 38) The form of a unity due to foundation is a *material* form. In the case of aggregates, the form is a purely *categorical* form. Things are becoming unclear here, because higher in the text, Husserl says that, in the case of unitary foundation (a whole made up of moments), the unity is also categorical (cf. also footnote 9). Husserl tries to solve the problem in the following way, by way of a distinction between the form and the content of the law of foundation. “(...) the Form of a Law is further as such categorical – a law is not thinglike, not therefore perceptible – and that *to this extent* the notion of a Founded Whole is a categorical notion. But the *content* of the law governing each such whole is determined by the material specificity of the ‘founding’ contents and consequently of the ‘founded’ types of content, and it is this law, definite in its content, which gives the whole its unity. For this reason we rightly call each ideally possible specification of the Idea of such unity a material or also a real (*reale*) unity.” (LU III: 39)

⁹ Although we usually say that a whole ‘has’ unity, the predicate attributed to it is not a ‘real’ predicate in the case of wholes made up of moments, because there is no unifying constituent in the whole. In that case, unity is a *categorical* predicate. In Husserlian

For now, it can be said that the status of the reason to form a unity is different. In the case of moments, there is a necessary, ideal law. In the case of pieces, the reason may be empirical.

5. A new status for pieces

Meanwhile, something important has happened. The status of pieces has changed: pieces are no longer excluded from foundational relations, because new forms can arise at higher levels (cf. section 4). Husserl encounters the case of aesthetic unities, which do exhibit an intrinsic order of their parts.

The matter would be quite different [from the case in which the sequence of fragmentations is meaningless] were we to fragment *aesthetic* unities, e.g. a star-shape built out of star-shapes, which in their turn are composed of stretches and ultimately of points. The points serve to 'found' stretches, the stretches serve to 'found', as new aesthetic unities, the individual stars, and these in their turn serve to 'found' the star-pattern, as the highest unity in the given case. (LU III: 40, italics added).

This example and the turning up of *aesthetic* objects are revealing. The distinction between moments and pieces, based on the presence or absence of foundational relations, becomes uncertain, because the order of piecing *does* matter in the case of *aesthetic* unities. Husserl has to partly abandon the distinction between moments and pieces as soon as he comes across aesthetic, i.e. truly organized objects.

There is, in their case [i.e. in the case of certain kinds of pieces], a fixed order of 'foundations', in which what is founded at one level serves to 'found' the level next above, and in such a manner that at

language, this means that the unity is not given in perception, but is constituted on a higher level of objectivity than perception, mostly in judgments. In contrast, in the case of wholes that can be pieced, the pieces 'really' exist, together with the sensuous (in opposition to categorical) form of unity, which rests on the pieces conjointly. Thus, the form is responsible for the unity of the whole. Form is a real part of the object which it in-forms, and, more precisely, it is a moment of the whole.

each level new forms, only reachable at that level, are involved. We may add the universal proposition: *'Pieces' are essentially mediate or remote parts of a whole whose 'pieces' they are, if combinatory forms unite them with other 'pieces' into wholes which in their turn constitute wholes of higher order by way of novel forms.* (LU III: 40)

Thus, pieces are not subject to regularities or laws of organization (cf. supra), except for the case of wholes of which we cannot deny their organization or a certain sequence of dependencies.

As a consequence, the universality of the basic criterion according to which moments and pieces are distinguished has to be given up as soon as we encounter wholes made up of pieces of which the intrinsic organization cannot be denied. Husserl is unable to uphold until the end the distinction between pieces and moments. Moreover, the claim that only moments are governed by essential laws, and pieces only by contingent, empirical laws, has to be given up. Organized wholes made up of pieces exhibit an organization that matters and that transcends the contingency that Husserl assigns to empirical laws.

Nonetheless, a crucial difference between pieces and moments remains present: Husserl does not formulate (the principle of) essential laws for the way in which *pieces* are organized. His initial presupposition that pieces do not possibly exhibit a necessary structuring of pieces therefore leads to new task. The status of combinatory forms (i.e. forms that give rise to organized wholes made up of pieces) has to be investigated. In other words, the laws governing organized wholes may be hidden in combinatory forms. Moreover, one may ask whether the acceptance of such combinatory forms is valid.

Might it be that combinatory forms are invoked precisely in order to uphold the distinction between moments and pieces? This seems unlikely, as combinatory forms rise on the level of particular regional ontologies (e.g. the region of aesthetic objects), whereas the distinction between moments and pieces happens on a higher level, i.e. on the level of general, formal ontology. Being situated at the level of *regional* ontologies, the laws of combinatory forms may be not as universal as the laws governing wholes made up of moments. In any case, we may conclude from the above that the ontology of pieces cannot be as general as the ontology of moments. An ontology of pieces unavoidably has to take the specificity of its object (physical object, aesthetic object, living

animal, spirit) into account.

6. Functional laws for organized wholes made up of pieces

Let us first recapitulate. A whole cannot be arbitrarily cut into pieces, or cannot be arbitrarily divided into moments. The latter is the case because moments are governed by ideal laws that prescribe the ordering of moments. In the case of pieces of extended wholes, Husserl first claims that there is no fixed order of division to be discovered. We have seen, however, that he cannot uphold this position and has to admit that the being-together of most kinds of pieces also shows a kind of regulated organization¹⁰. Notwithstanding the suspicion that there are hidden laws in Husserl's notion of combinatory forms, governing rules for the ordering of pieces are lacking in his account.

Yet, the objectivity of parts is precisely based on such rules, which govern the being-together of parts or the founding relations, resulting in an equally objective whole. Lampert (1989) ties this to the notion of boundary (cf. also note 7). An object can be divided in whatever parts necessary for keeping its outer boundaries intact. More precisely, the ordered division of an object into parts is prescribed by what a given kind of object *needs* in order to maintain its individuality and its contexts. In the case of moments, this is not difficult to see, once one is familiar with the ideal laws governing them. An extended object, for example, has all the colored fields necessary to keep it from vanishing. This is because extension and color are moments that require reciprocal foundation into one another. Yet, Lampert does not point to the fact that other examples are no longer governed by those *ideal* laws.

(...) an organism has all the powers it needs in order to keep foreign bodies from invading it, along with all the openings it needs in order to eat and to be invaded with useful parasites (...) (Lampert, 1989: 210)

The distinction between the rules governing moments and those governing

¹⁰ Most kinds of pieces, because some kinds of extended wholes do allow an arbitrary order of division, such as linear objects (for more details, cf. LU III, §19).

pieces is abolished or at least neglected, and replaced with the more general notion of 'need', linked with the need of maintaining the outer boundaries. To invoke the notion of 'need' renders all the laws governing foundation *functional*: a whole has all the parts it needs in function of preserving its wholeness. This contrasts with Husserl's neglect of the notion of function. Husserl considers the change of function of a piece separated from its whole inessential (cf. section 2).

Yet, functional alteration may precisely be a key concept for approaching the regularity exhibited by *organized* wholes made up of pieces. So, instead of focusing on (functional) need both in cases of moments and pieces (cf. Lampert), and instead of neglecting functional alteration (Husserl), it will be argued that function is a key concept in formulating laws for organized wholes made up of pieces. The result shall be threefold. First, thanks to the notion of function, the reason why pieces constitute a whole is traced. Second, the lack in Husserl's theory, i.e. the absence of rules governing foundational relations in the case of pieces, can be made up, based upon the functional account. Third, the distinction between moments and pieces is established on a new basis. In summary, next to the ideal, objective laws governing moments, functional laws are recognized as equally important for the distinction between moment and piece. In that way, pieces turn out to be philosophically rather interesting. In the next section, we focus on an exemplary kind of organized wholes made up of pieces – and thus work within a particular regional ontology – the one of living beings.

7. Combinatory forms and the wholeness of a living being

What distinguishes living beings from natural wholes that are not animated or from artificial wholes? According to McCarthy (1992), next to the complexity and the auto-organizing capacities which provide the living with the power of plasticity, living wholes exhibit an exceptional *intensity* of unity, i.e. not found in other wholes. This intense unity is exemplified in that a 'piece' of a living being cannot be separated from

the whole without altering its status from alive to dead¹¹. But it also means that it is ultimately the phenomenon of life that is used to explain the exceptional coherence or unity of a living being. In the strict sense, the special unity remains unexplained. In the case of particular wholes, such as aesthetic and living wholes, Husserl invokes the notion of ‘combinatory form’ in order to clarify the special unity. As there is no necessary reason for the pieces of aesthetic and living wholes to stick together, an appeal is made to the principle of form. In the case of living beings, the form is also referred to as ‘soul’¹². To invoke ‘life’ or ‘soul’ as explanatory principles for the special unity of some kinds of wholes points to a weakness in the analysis. For does the invocation of ‘life’ or ‘soul’ or ‘form’ not conceal the acceptance of a *principle* that regulates a non-necessary whole (i.e. a whole not under ideal, necessary laws), such as a living being?

We have seen that the *regional ontologies* of organized wholes – and of the living in particular – renders unstable the *a priori* distinction between moment and piece, which plays such an important role in the overarching formal part-whole ontology. Moreover, the emphasis on the exceptional intimacy between the pieces of a living being may raise the suspicion that such an intimacy is also governed by a *necessary* law. Stated differently, the combinatory form or soul may point to an *essence* particular to the living. As already mentioned in the previous section, functionality may be the key for this law proper to the living. In the next

¹¹ McCarthy (1992) rightly points to Husserl’s analyses in *Ideas II*, where Husserl describes that the essence of the living, although founded in material reality, does not share the characteristics of plain materiality. For example, it is impossible to ‘piece’ a living being in the same way as a mere extended whole. This once more shows that Husserl, when working in a regional ontology, has to deviate from the analysis of parts (moments and pieces) he offers in the third *Logical Investigation*.

¹² However, that form is conceived of as a moment, and not as a piece, avoids the trap of a ‘metaphysics of the soul’, in which the soul becomes thing-like. “This conception is not altogether wrong, for there is something tenuous about the unity of a living whole. Its being alive is not a thing to be taken for granted. But to picture the soul as a ghostly presence is, once again, to confuse a moment for a piece – the sort of mistake Husserl calls a reversion to the ‘mythic’. References to ‘soul’ are helpful because there is a dimension of every living being that can be neither weighed nor measured nor timed, yet is still a real part of it: the unity of its parts and actions through space and over time.” (McCarthy, 1992: 147)

section, a functional account proper to the parts and wholeness of living beings is being prepared.

8. Preparation for a functional account of parts and whole of living beings

The Aristotelian notions of *substance* and *essence* prepares an alternative characterization of parts and wholes, apt for a characterization of the parts and the wholeness of the living.

We begin with a sketch of the general frame: Aristotle's question what being is. In his quest of an answer to this question, he realizes that the question amounts to the question what *substance* is. Substance is primary in all respects, and the determination of what substance is, serves a twofold function. First, substance is the *fundamental* level of *being*. Second, substance is the basis on which all else is made *intelligible*. This twofold function shows that 'substance' is a double-sided notion, i.e. at the same time ontological and epistemological. The requirement of intelligibility also points to the fact that Aristotle does not – or cannot – accept mere *matter* as substance. Matter is the counterpart of form in Aristotle's hylemorphic conception of the world. The hylemorphic position is explained in the *Physics*, in which all basic particulars (e.g. an individual animal) are considered to be composite entities, i.e. a combination of matter and form. Form is what in-forms matter, and un-informed matter is unintelligible. Aristotle is occupied with the question what the true subject, i.e. the bearer of properties, is. Is it the composite whole, matter or form? In other words, Aristotle has to argue what counts as substance in the hylemorphic theory.

A second basic notion in Aristotle's philosophy is *essence*. The essence of something indicates what something is destined to be or to become. If something is to be understood, it is to be understood according to its essence. Luckily, the essence of something is what is most intelligible of that thing. The notion of *definition* is connected to the notion of essence, because it is the essence of something that is fixed in the definition of it. That means that a definition mentions those features of a thing that belong *per se* to the thing. Moreover, it is *only* the essence of something that is captured in the definition of something. But is there such a thing that only exhibits *essential* features? Is there, in other words,

something that can be exhausted by its definition? According to Aristotle, this is indeed the case: species have *no* features which are non-essential¹³.

In the *Metaphysics*, substance and essence are most closely linked. The reason is that substance is nothing but essence. Having an essence is the criterion for being a substance.¹⁴ Non-substances are to be defined in a secondary way. That means that what is ontologically prior, nl. substance (as that on whose being everything else depends), is also conceptually prior, nl. the essence caught in the definition of it (as that in terms of which everything else is to be explained) (cf. Tancred, 1998: xxxi).

Let us now turn to the ontological side. Substance must continue to be a subject, i.e. a bearer of properties. Here, one is inclined to think of ultimate matter as subject, but ultimate matter is unintelligible. Therefore, Aristotle seeks to equate species and *form*. Form has the advantage that it remains the same in different instances, “ (...) in the way in which it is man that begets man.” (Aristotle, 1998: 189) Although Aristotle does not argue explicitly for it, his position clearly is that form is conceptually basic because it is non-created (what is created is the composite of form and matter) and remains unchanged. Therefore, form is pure essence, or species, or substance.

¹³ A condition for being definable is the exhibition a kind of deep unity. Only a *single* thing can be defined. Aristotle argues that only an essence fulfills this condition.

¹⁴ Aristotle's position is different in the *Categories*, in which it is said that *particular individuals* are substances. This has changed in the *Metaphysics*, in which *species* fulfill the role of substances. This position resembles Platonism to a certain degree. There are two features which species do not share with Platonist *universals*, but do share with *particulars*, i.e. 'thisness' and 'separability'. In the translator's introduction to the *Metaphysics*, we read that thisness is something that a thing has by dint of being determinate in a way universals (or genera) are not. Species have thisness, which means that a thing can be a 'this' without being a particular. "I cannot point to an animal and, by saying 'this one', refer to the genus of animals as against that of plants." (Tancred, 1998: xxxiii) A species is defined in terms of a genus and a differentia, the feature that distinguishes it from all other species in the same genus. For example, a man is a two-footed (differentia) animal (genus). In contrast to a genus, I can point to a man and refer to the species 'man'.

9. An Aristotelian account of part and whole

Aristotle, however, runs into the following problem. First, unity is a condition for being definable (cf. note 13). Yet a definition has several parts, because a species is defined in terms of its genus and its differentia (cf. note 14). Second, how are we to decide which parts belong to the definition and which do not belong to it?

Here, Aristotle's distinction between two kinds of parts comes to play a crucial role. The distinction is based on the order in which we understand the whole and the parts. In the order of understanding, a thing can have parts that are prior, and parts that are posterior to the whole.

A part that is prior in understanding is a part the understanding of which must precede understanding of that entity as a whole. (...) By contrast, a part that is posterior in understanding is a part that can only be understood when the thing of which it is a part is already understood." (Tancred, 1998: xxxv)

Aristotle gives two examples. First, the example of a syllable and its letters; second, the example of a circle and its parts. In the first case, you cannot understand the syllable unless you know the parts, i.e. the letters. In the second case, you cannot understand a part of the circle unless you know the whole, i.e. the circle. In the first case the parts are prior, in the second case posterior. This does not mean that the circle is less divisible in parts than a syllable.

The distinction solves Aristotle's definition-problem in the following way. The parts of a definition are *posterior* to the definition as a whole. To have a posterior part does not violate the unity of something in the way prior parts do. This amounts to the claim that substances (or essences) exhibit the unity required, because the parts of the definition in which essences are defined are only posterior.

When the whole is prior, the following two statements are valid.

For (i) it is from these wholes that the accounts of these parts are derived, and (ii) the wholes are prior in respect of mutual independence of being. (Aristotle, 1998: 201)

The mutual independence of being points to the fact that the parts cannot exist separately, but the whole can.

But how do we explain the difference between *a priori* and *a posteriori* parts? Why is it that there is an order of understanding regarding parts and wholes? It is here that the form-matter account plays a decisive role, because the distinction between prior and posterior parts is based on the distinction between formal and material parts of things.

(...) the bronze is a part of the whole composite statue but not a part of the statue as formally specified. And there is a reason for this in that a particular can be spoken of as its form or in respect of the fact that it has a form, whereas in no cases can the material element be referred to *per se*. And now we have our explanation of the fact that (a) the account of the circle does not comprise that of the segments, while (b) the account of the syllable does comprise that of the letters. It is because the letters are parts of the account of the form and do not constitute matter, while the manner in which segments are parts is that of the matter on which the form is superimposed. (Aristotle, 1998: 202)

Again, this account is not to be put on the same footing as the account of divisibility. It is not because something is a *part* of a whole, that it is an *essential* part of the whole, although the breaking up into parts implies a *destruction* of the whole.

A line is indeed destroyed by being divided into halves. A man is indeed destroyed by being dissipated into bones, sinews and morsels of flesh. But this does not entail that those entities are composed of those items in such a way that they are parts of their substance. The fact is that they are material, being parts of the composite whole but never of the form and the bearer of the account. This is why these parts are not included in the accounts of the wholes. (Aristotle, 1998: 202)

To determine the parts of a whole means to determine what makes up the *intelligibility* of the whole, and not what makes up its sheer *material* constitution.

(...) So anything that is a part in the material manner and to which destructive resolution as to matter takes place is posterior, but anything that is a part as of the account and of the substance as specified in the account is prior, either in all cases or in some. (Aristotle, 1998: 203)

A whole can thus be both prior and posterior. The circle, for example, is posterior to the parts included in the definition, but prior to those included in the particular instance.

10. Living beings as a whole and their form

Aristotle shows a special interest in the living. In the case of living beings, the form (or substance, or essence) is called the soul. The Aristotelian account of the soul differs in important respects from the Husserlian account of the soul. Clearly, for both philosophers, the soul is considered as a *part* of the whole that fulfills the peculiar task of providing an account of the *whole*. For Husserl, the soul is (i) a particular kind of part, i.e. a moment, and (ii) the combinatory form that engenders the living being as a whole made up of pieces. For Aristotle, the soul is (i) also a particular kind of part, i.e. a *prior*, formal part in the above sense, and (ii) the essence, or substance of a living being. The body, in contrast, is material and can be divided *a posteriori*.¹⁵ The way in which the soul engenders the whole and the status of the soul-part nevertheless differ profoundly in both philosophers.

In the Husserlian part-whole account, the distinction between piece and moment *produces* the problem of explaining the organization of wholes made up of pieces, such as living beings. This unintelligibility is veiled by invoking 'combinatory forms' that constitute the whole in the case of organized things. In the case of living beings, the combinatory form is called the soul. In this way, the soul turns up as an *ad hoc* solution for the previously produced unintelligibility. From a metaphysical point of view, however, this kind of soul has little strength.

In the Aristotelian part-whole account – which has Platonist influences – the form is something that we necessarily have to *presuppose* in order to render the thing (or particular) at issue intelligible. In the case of living beings, we have to presuppose a soul in order to understand the

¹⁵ At the same time, however, Aristotle also acknowledges the close connection between form and matter in animals, because some material parts seem to be neither prior nor posterior. "These are the parts that exercise control, notably that part that is the primary seat of the account and substance, be it heart or brain (you can toss a coin between them in the present context)." (Aristotle, 1998: 204)

animal as an organized whole. In the opposite case, we merely have a material body, which can be divided in *a posteriori* parts. Those *a posteriori* parts precisely resemble the Husserlian pieces, which hinder an *adequate* understanding of organized wholes. Aristotle, in contrast, considers the soul as an excellent *presupposition* for rendering living beings intelligible. His conception of the form of living beings is already *included* in his distinction between prior and a posterior parts. Even more, it is the criterion by which the distinction is made.

As such – and notwithstanding the surface similarities – the status of the soul is radically different in Aristotle and in Husserl. In Husserl, the soul is the product of an unintelligibility raised at the level of the distinction between moments and pieces. In Aristotle, the soul (or the form in general) is the basis for the distinction between prior and posterior parts. The Aristotelian account enables us to solve the Husserlian difficulty of formulating laws for the organized whole that a living being is. Let us first recapitulate. Husserl's account hindered a taking into account of the organization of certain kinds of wholes, i.e. living beings. Living beings merely consist of philosophically rather 'uninteresting' pieces. That is a direct consequence of distinguishing parts according to the criterion of ideal laws, which only govern the organization of moments, and not of pieces. In order to explain the organization that wholes made up of pieces exhibit, Husserl makes an appeal to combinatory forms. While Husserl does not reify the combinatory forms of living beings, the soul nevertheless remains an *ad hoc* solution. In addition, organization seems to involve a kind of law, but Husserl is unable to formulate those laws for wholes that are built up with pieces. Aristotle does not encounter that problem. To break up a living being in posterior parts is possible, and certainly destroys the living whole. This breaking up resembles a Husserlian analysis into pieces. However, it does not shed light on the essence of how a living being is composed. Consequently, an analysis in posterior parts or pieces cannot make the whole (as organized) intelligible.

In order to truly understand a living being, the whole must be approached in the light of its essence or soul. To consider a living being from the perspective of its essence, renders it intelligible. In other words, the soul is a necessary perspective from which the living can be understood. It is only from this perspective that a living being is more than – or different from – a thing without intrinsic organization or

without an intrinsic order for 'piecing'.

In what way now does the Aristotelian account of the soul solves the problem of regularity? In section 6, it was stated that functional alteration of a piece – once separated from its whole – may provide a key to the answer. Now we have the means to take the functional alteration of pieces into account. A piece can only reveal its function if it is seen as part of an organized whole. Such a point of view is enabled by the Aristotelian account of the soul. A living being comes into view as a functionally organized whole from the perspective of the soul. The formal soul infects the material body, such that the body is no longer pieced together, but truly organized according to the functions a living being has to actualize. Once the functionality of body parts recognized, there is the possibility of formulating functional laws, which prescribe how parts must be organized in order to maintain the whole.

11. Implications of part-whole metaphysics for internal/external issues

Something external is something not belonging to a certain coherent group (a whole). External is what lies without an inclosure. What is internal belongs to the exclusive group of the whole. It is that which is within. It is included or inclosed. Still, how do we know what is internal and what is external? And how do we know *in what way* it is internal or external? The whole has to be limited, and the decision has to be made whether or not the item at stake is part of it. The aim of this article was presented as a search for the *conditions of possibility* for assigning the relation of internality or externality between two items. This search has been introduced as involving the elaboration of a *part-whole metaphysics*. The reason is that internal/external issues are *enabled* and *mediated* by a part-whole metaphysics. Something is called internal in relation to something else if it is *part* of the latter (a whole). If something does not belong to the whole, it is called external to it. The ways of internality or externality can differ profoundly.

The decision whether or not – and in which way – something is part of a whole contains a number of difficulties. Firstly, a part-whole account has to be chosen. Second, the chosen part-whole account has to be justified. Such a justification must consider the adequacy of the part-whole account in regard of its object. This means that the specificity of

the kind of object must be given its due. This is not an easy task. An a priori, formal decision – as in Husserl’s case – about what kinds of parts there are and in which way they form part of a whole can give rise to an inadequate treatment of the object at hand (in case organized wholes made up of pieces). The concept of ‘piece’ is based on considering a whole as something primarily extended. Due to its basis in extension, it focuses on a topological interpretation of internal/external. Does a non-functional yet topologically internally localized part of a living being belong to the living whole? Does a functional yet topologically externally localized part belong to it? In what way does the relation of internality differ in both cases? It depends upon the part-whole account opted for. However, the choice made is not without any problem. A certain account may turn out to be untenable, as was the case with Husserl’s option. A first indication was the neglect of the changed functionality of pieces after separation. Secondly, the phenomenon of organized wholes not governed by ideal laws was not satisfactorily treatable in his account. For the particular ontological region of living beings another account had to be developed. In this respect, the Aristotelian soul could be interpreted as a perspective that renders an adequate, functional account of the parts of the whole possible. This account can give rise to different decisions about which items and in which way these items belong to a whole. The adequacy asked for, thus involves making efforts to adapt the part-whole account for every ontological region. The perspective that fixes the part-whole account mediates and directs the decisions made concerning internal/external issues.

Universiteit Gent (UGent)

REFERENCES

- Aristotle (1998). *The Metaphysics* (Translation and Introduction: H.L. Tancred). London: Penguin Classics.
- Drummond J.J. (2003). ‘Husserl’s Third Logical Investigation: Parts and Wholes, Founding Connections, and the Synthetic *A Priori*’, in D.O Dahlstrom (Ed.), *Husserl’s Logical Investigations*, Dordrecht: Kluwer Academic Publishers, pp. 57-68.
- Husserl E. (1992 [1900; revised edition: 1913]). *Logische Untersuchungen. I: Prolegomena zur Reinen Logik*. Hamburg: Meiner.

- Husserl E. (1992 [1901; revised edition: 1922]). *Logische Untersuchungen. 2.1: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis*. Hamburg: Meiner.
- Husserl E. (1992 [1901; revised edition: 1922]). *Logische Untersuchungen. 2.2: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis*. Hamburg: Meiner.
- Husserl E. (2001 [1913/1922]). *Logical Investigations* (2 volumes) (Translation: J.N. Findlay). London/ New York: Routledge.
- Lampert J. (1989). 'Husserl's Theory of Parts and Wholes: The Dynamic of Individuating and Contextualizing Interpretation – *Übergehen, Abheben, Ergänzungsbedürftigkeit*', in *Research in Phenomenology* 19, pp. 195-212.
- McCarthy J.C. (1992). 'Parts, Wholes, and the Forms of Life: Husserl and the New Biology', in L. Hardy and L. Embree (Eds.), *Phenomenology of Natural Science* Dordrecht: Kluwer Academic Publishers, pp. 135-156.
- Sokolowski R. (1977). 'The Logic of Parts and Wholes in Husserl's *Logical Investigations*', in J.N. Mohanty (Ed.), *Readings on Edmund Husserl's Logical Investigations*, The Hague: Martinus Nijhoff, pp. 94-111.