

Value-Wholes

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1. Introduction

Over the past few decades, a number of different formal theories have been developed for the modelling of human and social behaviour. Some of the best-known of them are decision theory, game theory and social choice theory. The latter concerns how groups make their choices, either through institutional procedures (i.e. voting) or through the decisions of some social planner. The theories mentioned describe individuals in terms of their preferences, usually organized into series of preferred alternatives. Given a set of available alternative options, any individual is supposed to organize them from the most to the least preferred.

The literature dates back to the work of Borda and Condorcet on voting systems in the 1780s. Modern social choice theory has developed from Paretian welfare economics such as put forward by Samuelson in the 1930s, and from the axiomatic methods introduced by Arrow, Nash and Harsanyi in the 1950s.

The main problem of social choice theory is still the one originally raised by Bentham, namely how to compare and aggregate the utilities of individuals.

Unfortunately, the main results of social choice theory are impossibility results, possibly the best-known of which is Arrow's impossibility theorem: given some seemingly very reasonable assumptions, it can be proved that no rule can be devised for aggregating individual (ordinal) preferences into a social ordering (Arrow 1963, 1st ed. 1951; Sen 1970). In the more than fifty years since Arrow first presented his theorem, a number of criticisms have been brought against most of its axioms, and more generally against the over-reduced informational basis used to prove it.

Individual orderings of a given set of alternatives generally do not provide enough

information for the unambiguous calculation of social interactions. A substantially larger informational basis is likely to be needed.

Furthermore, the mathematics usually used by economists to develop their decision and rationality theories is rather elementary. It may be worthwhile to try more sophisticated formal tools able to deal systematically with the duality of variation and vagueness implied by social phenomena. A different but related claim is the following: what is required is a mathematical framework able to support the idea of generalized points, or points with structure, i.e. a framework able to formally support the theory of levels of reality.¹

Among the various solutions to the impasse created by impossibility theorems (Arrow's is only one of the many impossibility results that have characterized the development of social choice theory) the most interesting seems to be the capability theory developed by Sen (like Arrow, awarded the Nobel Prize for economics), which has ramified into a view which has surprising similarities with the traditional Aristotelian approach – especially in the version of it developed by Martha Nussbaum (see e.g. Nussbaum 2000).

It is little known that Brentano sought to make systematic use of the preference relation in his reflections on ethics. More generally, both Austrian schools of value – the economic school of Menger, Wieser and Böhm-Bawerk and the philosophical one of Brentano, Meinong and Ehrenfels – are based on acts of valuation. The innovative feature of Brentano's investigations – which as far as I know have never been further explored – is that they have the preference relation act upon values with a part/whole structure and which are accordingly not considered on a par with structureless points, that is, points in the sense of set-based elements.

The two main novelties of Brentano's method are the following: (1) it attempts to construct a theory in which the preference relation acts upon a theory of values, not upon choices among goods; (2) it rests, as said, on a categorial basis constituted by a

¹ For the mathematics, see Drossos 2005a,b; for the theory of levels of reality see Poli 2001, 2006a,b, Gnoli and Poli 2004; for a connection between the philosophical and mathematical viewpoints, see Poli 2004a.

theory of parts and wholes. Both these aspects sharply distinguish Brentano's approach from modern social choice theory.

On the other hand, it is well known that Brentano was one of the foremost Aristotelians of the nineteenth century (although it is not entirely clear *which* aspects of Aristotelian theory he reprised and modernized). Perhaps the two most interesting aspects are his use of the theory of parts and whole as the core of his theory, and his resumption of the categories of activity and passivity (see Poli 2004b). A particularly interesting question is whether the neo-Aristotelian development of capabilities theory fits with Brentano's theories.

In formal terms, an issue of especial interest is the following. Let us suppose that we accept the criticisms of social choice theory and expand the information base of preferences (both in Sen's weak version and Nussbaum's more robust one). There still remains the problem of how to decide whether the better formal codification of the underlying theory of values is the canonical one of a set-theoretic mathematics or whether it is more fruitful to adopt a mereological (or even holeological) point of view.

This paper will only lay the bases for the argument by seeking to reconstruct Brentano's position. It will deal with some aspects of his thought, while later studies will conduct a more systematic comparison and eventually propose both conceptual and technical developments.

2. The origin of moral knowledge

Brentano's short book *The Origin of the Knowledge of Right and Wrong* (1889) was certainly not among the texts most frequently consulted by twentieth-century ethical thinkers. Among the few exceptions was Husserl, who described it as "a work of genius which prompted my endeavour to devise a formal axiology" and Moore, who in the preface to *Principia Ethica*, confesses that "When this book had been already completed, I found, in Brentano's 'Origin of the Knowledge of Right and Wrong',

opinions far more closely resembling my own, than those of any other ethical writer with whom I am acquainted".²

We shall see that Brentano's theses – with their enrichments by Husserl and Moore – are still of considerable interest and warrant close consideration.

In this and the following sections, I shall discuss the problem of value-wholes. It is indubitable that the credit for inaugurating parts/wholes analysis in the study of values should be attributed to Brentano. Husserl points out, however, that Brentano only took a preliminary step and that the theory should be further developed by distinguishing value-wholes into sum-wholes and product-wholes. For Husserl, "this distinction" – between sum-whole and product-whole – "essentially improves Brentano's laws: they can and must be preserved only within sums of values".³

Sum-wholes are value-wholes which obey the law stating that the value of the whole is equal to the sum of the values of its parts (whence the name). Product-wholes are instead value-wholes that obey the law stating that the value of the whole may be different from the sum of the values of its component parts. The term *product* chosen by Husserl does not in this case have a technical sense: it is selected principally for its reference to an operation different from summing and intuitively unconnected with it. The difference between sum-wholes and product-wholes resides in the role performed by the connections that tie the parts together. In sum-wholes, the value of the whole can be decomposed and individually assigned to its parts, without their *connections* being assigned some value. In the case of product-wholes, because of the "peculiar connection among the parts in a whole of this kind, and the way in which the values of the individual parts cooperate axiologically, there must arise a unit of value which is something more than the collective unit of the value components". In other words, in product-wholes the *relations* among the parts contribute to the value of the whole. As Husserl writes, "every harmony of sounds

² Husserl 1988, p. 97, Moore 1992, pp. x-xi. Some other references to Brentano's work are made by thinkers who can be regarded as members in the broad sense of his school.

³ Husserl 1988, p. 97. Husserl's judgement may not be entirely correct. There are some passages in Brentano which envisage organic wholes. The following quotation should suffice: "in the same way in a work of art, or in an organism and similarly in the case of the family, the part always exists for the sake of the whole". See Brentano 1902, p. 36.

and every harmony of colours provides us with a suitable example” (Husserl 1988, 96).

Moore had the same intuition but he chose a more felicitous term for it: instead of *product* wholes, he refers to *organic* wholes or units. The expression ‘organic unit’ denotes “the fact that a whole has an intrinsic value different in amount from the sum of the values of its parts” (Moore 1992, p. 36). There is no direct connection between the values of the parts and the value of the whole, for various reasons but principally because of the complex role performed by the parts with negative value (disvalues) and the parts indifferent to value. Put otherwise, in the case of organic wholes, the value of the whole does not derive from a calculation of the values of the parts which adds the positive ones and subtracts the negative ones (the parts indifferent to value are worth zero and therefore need not be explicitly recorded). It may happen that the presence of disvalue parts in an organic whole increases its value rather than decreasing it. Likewise the presence of value-indifferent parts may increase the value of the whole rather than leaving it unchanged.⁴

Some years later, Ross summarized Moore’s theory of organic wholes and commented on it as follows: His well-known theory of organic units states that elements which in themselves are indifferent or bad may nevertheless contribute to the goodness of the whole in which they are comprised. Thus a whole which contains, for example, a good element and an indifferent one may have a goodness greater than that of its good element, and hence is not simply good 'by dint of one of its parts'. It is difficult to evaluate the importance of this theory. One has to admit that clear examples of 'organic units' in this sense are rather rare. At first glance, one would say that the most striking examples are to be found in aesthetic appreciation and economic activity. (a) In aesthetics it is well-known, for example, that certain details of a poem or a painting, which would have little or no aesthetic value on their own, nevertheless contribute greatly to the effectiveness of the whole. (b) in

⁴ The formulation concerns wholes of goodness. Entirely similar laws apply to wholes of badness. In this case, it may happen that presence of value parts in an organic whole of badness increases its disvalue rather than decreasing it, and that the presence of indifferent parts may increase the whole’s disvalue rather than leaving it unchanged.

economic activity, it is a familiar fact that a pair of boots is worth more than a single boot, and an assembled machine is worth much more than its unassembled parts (Ross 2002, pp. 84-5). However, Ross then realized that the examples did not work: in both of them, the values in question are instrumental and therefore do not constitute an example of the doctrine of organic units. Even if the examples are wrong, they are not useless. They remind us that the theory of organic wholes does not concern instrumental value-wholes but intrinsic value-wholes. Henceforth I shall take it for granted that the value-wholes discussed are intrinsic value-wholes, and will therefore not constantly repeat the qualifier *intrinsic*.

The following analysis will show that the difference between sum-wholes and organic wholes becomes even more significant if it is accompanied by modification to the categorial framework used: specifically the replacement of a two-category framework with a three-category one.

Two-category evaluations use only the value categories of Good and Bad; three-category ones use those of Good, Bad and Indifferent. Brentano set out all his theses in the form of two-category valuations, while Moore and Husserl instead employed three-category ones. This explains Husserl's statement that "when in our axioms we speak of positive and negative values or of good and bad, this by no means amounts to saying good and not good". Indeed, "from the logical-analytical point of view, predicates like 'good' and 'bad' are mutually exclusive in the same way as A and not A are". However, if the evaluation is conducted within a three-category framework, the law of the excluded third must be replaced by the "law of the excluded fourth for fundamental values" (Husserl 1988, pp. 86-7).

I shall treat the two theories of value-wholes as if they were entirely distinct. Still in the background, however, will be the hypothesis that sum-wholes may be a limiting case of organic wholes: hence sum-wholes are rigidified organic wholes without interactions among their parts. We shall also see that values require a particular categorial framework, which I shall call *holeological*.⁵

⁵ From *holos*, whole. It is therefore incorrect to take the analysis of the parts and wholes of value in the mereological sense (from *meros*, part).

Analysis of value-wholes can be conducted in regard to *acts* of valuation or in regard to the *objects* of valuation. For the sake of convenience I shall take the latter option.⁶

Some writing conventions will clarify the formulation. G, B, I denote respectively Good, Bad and Indifferent. These are simplified expressions for $G(x)$, $B(x)$ and $I(x)$, i.e. for the statements *x is good*, *x is bad*, *x is indifferent* (or *x is neither good nor bad*). As Moore writes: “But a thing belonging to any of these three classes may occur as part of a whole, which includes among its other parts other things belonging both to the same and to the other two classes; and these wholes, as such, may also have intrinsic value” (Moore 1992, p. 27).

When necessary, subscripts will be used to distinguish different values: for example, G_1 and G_2 will denote two different goods. Also used will be the operators ‘>’ (preferable) ‘+’ (sum) and ‘•’ (composition). The expression ‘ $X > Y$ ’ therefore signifies that X is preferable to Y. Preference is evaluated in an objective sense: X is said to be preferable to Y because X is better than Y (i.e. X contains more good than Y). ‘ $X + Y$ ’ denotes the value-whole which results from the sum of the values of the parts X and Y. ‘ $X \bullet Y$ ’ denotes the value-whole composed of X and Y. The concept of ‘composition’ in the sense used here indicates not only that X and Y are juxtaposed (as in the case of the sum) but also that there are *relations* between them, often in the form of *dynamic interactions*.

I shall write all the laws in dyadic form (as in ‘ $X + Y$ ’). Their *n*-adic extension (as in ‘ $X_1 + \dots + X_n$ ’) does not pose particular problems.

3. Laws of existence of value-wholes

I begin with discussion of the existence – as opposed to the non-existence – of values. \bar{G} and \bar{B} indicate the non-existence respectively of the goodness G and the

⁶ From a phenomenological point of view, choosing the objectual approach should not raise difficulties, given that Husserl explicitly states that the two spheres correspond. But even if the phenomenological approach is rejected, the choice of beginning from the objectual plane is anyway the least problematic.

badness B. Brentano argues that the existence of a good whole is preferable to its non-existence ($G > \tilde{G}$), just as the non-existence of a bad whole is preferable to its existence ($\tilde{B} > B$). It seems obvious to extend these first two laws by adding that the existence or non-existence of an indifferent whole is a matter of indifference.

These first considerations of a non-relational nature – in that they concern value-wholes as such – become more complex when besides value-wholes we also consider the value-parts of which they are made up. In this case, if it is true that a part with disvalue or a value-indifferent part can increase the value of the whole, then some form of derived value also applies to it.

Derived values do not solely concern wholes and their forms of composition. We find the same phenomenon in causal dependences. If the existence or non-existence of values and disvalues results from causal forces, these same forces secondarily acquire value and disvalue. If C is a cause of G, then the value of G is transmitted to C. Likewise, if C causes the disvalue of B, this disvalue extends to C. Whatever causes a positive or a negative value undergoes the influence of the caused value of disvalue and itself becomes a (derived) positive or negative value. If C causes the non-existence of G, C is a (derived) disvalue; if C causes the non-existence of B, C is a (derived) value. More generally, for every G, whatever excludes the existence of G is a disvalue; for every B, whatever excludes the existence of B is a value (Husserl 1988, pp. 77-8).

The interweaving of original and derived values both within the value-whole and in the relations among wholes shows how complex and dynamic value relationships may be.

Before concluding this section I must make another point concerning wholes and parts. I shall state it in the form of this principle: the existence of a value-whole entails the existence of its parts.

However banal this principle may seem, it raises problems, the main one being that a value-whole has a twofold nature. A value-whole cannot exist independently of a value-bearer. The dependence relationships that tie a value-whole to its parts should not be confused with the whole/parts dependence relationships characterizing the

bearer of the value-whole. We therefore have a dual part/whole composition: on the one hand it obtains at the level of the bearer; on the other it obtains at the level of the value-whole. In the perhaps more elementary case of a value-endowed material good, the material constitution of that good and the particular nature of the material relationships between parts and wholes should not be confused with the axiological constitution of the value-whole and with the specific nature of the axiological relationships between parts and wholes. As Husserl puts it, a part of the bearing whole does not have axiological value unless it contains “the founding moments” of the value-whole (Husserl 1988, p. 79).

Having made these preliminary specifications, I now move to analysis of sum-wholes.

4. Sum-wholes

I begin by considering the following two theses distinctive of the theory of sum-wholes.

- a good whole is better than a mixed whole comprising goodness and badness: $G > G + B$;
- a mixed whole consisting of goodness and badness is better than a whole consisting solely of badness: $G + B > B$.⁷

Combining, we obtain what we may call the first axiom of the theory of sum-wholes:

Axiom 1. $G > G + B > B$.

Operating along a single dimension – from the maximum of badness to the maximum of goodness – Axiom 1 holds if the G s are interpreted as positive values (more than zero value) and the B s as negative values (less than zero value). Because

⁷ The first law is Husserl’s: see Husserl 1988, p. 93. The second law is Brentano’s.

the two-category theory allows for only goods and bads, the zero value does not perform any material role. Its function, that is to say, is purely formal.

The next thesis is particularly interesting. I write it as:

Axiom 2. $G_1 + G_2 > G_1$ (or G_2).

In words: a good whole is better than its parts. There is a dual version for bad wholes:

Axiom 2'. $B_1 > B_1 + B_2$ (alternatively, $B_2 > B_1 + B_2$).

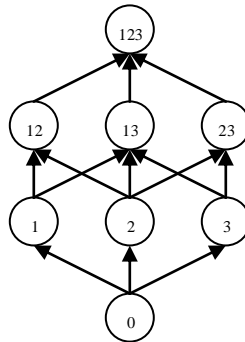
As said, the thesis expressed by Axiom 2 is particularly interesting. Its validity shows that *axiological holeology* does not coincide with *classic mereology*. The latter is founded on the concept of 'part'.⁸ A part is always includable in a whole that comprises it: for all x there always exists a y such that x is a part of y (formally, $\forall x \exists y. pt(x,y)$).⁹ The inclusion is iterated from whole to whole until the maximum whole is reached.¹⁰ Hence it follows that there exists a value-whole greater than any other value-whole. This maximum whole is necessarily the most preferable whole. If the foregoing is the case, wholes of goodness take the form of a lattice. Suppose that there are three goods G_1, G_2, G_3 . The situation is as depicted by Figure 1.

Figure 1. The goods lattice

⁸ From a formal point of view it is not necessary to resort to the concept of (proper) part. One can use various other primitive concepts instead and still obtain reciprocally equivalent systems. A part is proper if it does not coincide with the whole. In other words, if a whole has proper parts, it has at least two of them.

⁹ 'pt' means '(proper) part of'. $Pt(x,y)$ signifies that x is a (proper) part of y.

¹⁰ Excluding infinite iteration.



Interpretation is straightforward. The numbers 1, 2 and 3 denote values. Value-whole 12 (read as ‘one-two’ not as ‘twelve’) is the whole composed of the values 1 and 2, whole 13 is composed of values 1 and 3, and so on. Note the presence of a maximum value: the whole which comprises all the values indicated. Note also that the values lie at different levels. The value of a whole is greater, the more value-parts it contains. Here, as said, the zero value performs no material role. However, its presence greatly simplifies the calculation.

This interpretation raises numerous problems, two in particular. If bads have genuine autonomy and cannot simply be taken to be absences of goods, we must duplicate the structure and have one lattice for goods and one for bads. In itself this is not a particularly serious problem. We shall see later, in fact, that values are not comparable with each other, and that comparison can only be made within specific families of values. Since in any case we end up by having to govern a multiplicity of structures, their duplication by values and disvalues does not raise problems of principle. However, a second difficulty is more serious. From a substantial point of view, it seems illegitimate to assume that all values have the same weight; it seems more plausible that values do not have even equivalent weights. Some values are minimally such, while others are immensely important. The difference among the weights of values does not falsify the formal structure of the lattice, which is entirely indifferent to these matters, but it raises the doubt whether a structure more closely reflecting the relevancies of the domain of values should not be used.

Besides these doubts of a more formal nature, the reticular structure, which initially seemed so promising, is not acceptable for more substantial reasons too. Brentano's thesis does not in fact state that a good is always includable in a greater good. It states something different, namely that a whole which consists solely of goodness is better than each of its parts. By completion, a whole entirely made up of badness is worse than each of its parts. Although the difference between the two statements may seem minimal, it is not. The mereological approach is based on parts and states that each part is part of a whole which in its turn is part of a further whole, and so on. This is a so-to-speak 'ascendant' approach. Brentano proceeds in the reverse direction. He begins with the whole and moves to its parts, and thence to further parts of parts. Parts are what really count for the mereological approach; wholes are what really count for Brentano's approach – which is why I term it holeological. From this different point of view, value-wholes are not transcendable to other broader wholes. Each value-whole is a fixed point, so to speak, a point of arrival which does not require further integrations. In this situation the only correct analytical procedure is the decomposition of the value-whole into its value-parts, and then perhaps into parts of parts. For Brentano, as said “the part always exists for the sake of the whole” (Brentano 1902, p. 36).

I now turn to the third axiom of Brentano's theory of values. This governs the value relationships among different wholes, i.e. ones which are not part of each other. Brentano writes: “one good is preferred to another, which, while forming no part of the first, is yet similar in every respect to one of its parts” (Brentano 1902, p. 25). It can be formalized as follows:

Axiom 3. $G_1 > G_2 \wedge \neg \text{pt}(G_2, G_1) \rightarrow \exists G_3 (G_3 \cong G_2 \wedge \text{pt}(G_3, G_1))$

This formula is more complex than the two previous ones. It can be written discursively as follows: affirming that a value-whole G_1 is preferable to another value-whole G_2 not a part of it implies that there exists a third value-whole (G_3) entirely equivalent to G_2 , and that G_3 is a part of G_1 . This is an extremely strong

assertion, for it states that two value-wholes are comparable in respect to their quantity of value *only if* they are made up of values *of the same type*. Perhaps the simplest interpretation of the *equivalence* between G_2 and G_3 is to take it as exemplifying the same type of value: G_2 and G_3 are equivalent because they are instances of the same species of value.

This species should be further viewed as the *species specialissima* of its instances. An example from the natural world may clarify the point: a carburettor C_1 is equivalent in the sense of ‘equal in every respect’ to another carburettor C_2 *if and only if* both are instances of the same model – that is, if both can be fitted to the same type of car. Generic equivalence (the fact that they are both carburettors) is not sufficient. They must be exactly the same.

Although the example is somewhat artificial, it should nevertheless aid understanding of the stringency of Brentano’s constraint. Direct comparison among value-wholes is legitimate only if the wholes are connected together as whole and part (Axiom 2), or as one whole and another whole which is equivalent to one of the first whole’s parts (Axiom 3).

Even if this particular thesis of Brentano’s is not accepted, the problem remains of the existence or otherwise of a procedure for comparing values. Like Brentano, so Husserl rejected the possibility of a universal comparison among values: “we cannot assume that values ... can always be compared”. Again: “we must ... restrict ourselves to the values of a region of the value”, that is, “of a category of the value”. Only within a category of value is it correct to compare the corresponding values: “if ... we keep within the boundaries of a category, there then exist general relationships of comparison” (Husserl 1998, pp. 90-91).

Brentano furnished a criterion with which to distinguish among families of values: each family is composed of values that can join together into value-wholes. The theory of parts and wholes is one of the crucial nodes of Brentano’s categorial framework, and he viewed its use as entirely natural (Poli 2004b). Unfortunately, neither in the case of Brentano’s theory or parts and wholes, nor in that of Husserl’s subsequent theory of parts and wholes, are clearly adequate formalizations available,

or at any rate ones accepted by the majority of scholars. It is accordingly difficult to assess the merits or flaws of those theories. Nevertheless, Brentano should be credited with furnishing a general criterion with which to distinguish among families of values.

5. Organic wholes

The transition to organic wholes significantly alters the picture. As said, this is a twofold passage: on the one hand the relation between wholes and parts changes; on the other the framework changes from two categories to three.

Given that Moore describes the situation most clearly, it is his theses that I now report.

“It is certain that a good thing may exist in such a relation (= the organic relation) to another good thing that the value of the whole thus formed is immensely greater than the sum of the values of the two good things”. Moreover: “It is certain that a whole formed of a good thing and an indifferent thing may have immensely greater value than that good thing itself possesses” (Moore 1992, pp. 27-8).

Formally¹¹:

$$(1) \quad G_1 \bullet G_2 > G_1 + G_2$$

$$(2) \quad G \bullet I > G + I.$$

Corresponding laws also hold for wholes of disvalue: “It is certain that two bad things or a bad thing and an indifferent thing may form a whole much worse than the sum of badness of its parts”.

Formally:

$$(3) \quad B_1 + B_2 > B_1 \bullet B_2$$

¹¹ The formulas presented in this section are partial in that they do not express the required condition that the given parts are parts of some organic whole.

$$(4) \quad B + I > B \bullet I.$$

The presence of indifferent entities multiplies the cases to consider: “And it seems as if indifferent things may also be the sole constituents of a whole which has great value, either positive or negative”.

i.e.:

$$(5) \quad G > I_1 \bullet I_2$$

$$(6) \quad I_1 \bullet I_2 > B.$$

“Whether the addition of a bad thing to a good whole may increase the positive value of the whole, or the addition of a bad thing to a bad may produce a whole having positive value, may seem more doubtful; but it is, at least, possible, and this possibility must be taken into account in our ethical investigations.”

Formally:

$$(7) \quad G \bullet B > G$$

$$(8) \quad G > B_1 \bullet B_2$$

Overall, as said, “the principle is clear. *The value of a whole must not be assumed to be the same as the sum of the values of its parts*” (Moore 1992, p. 28). Ross added that we have no right to assume that the value of the whole is exactly equal to the sum of the values of its elements taken separately. It may derive part of its value from the co-presence of some of its elements in a certain reciprocal relation (Ross 2002, p. 87).

The last two cases are the most problematic. Husserl comes to our aid, however: “the beautiful and the disgusting, the good and the bad may thus form an axiological unit of positive value which does not affect the co-presence of badness, which indeed causes the unit’s increase. The disappearance of an unpleasant element or set of elements may impoverish rather than augment the value of the harmony, just as

the disappearance of something pleasant may augment rather than impoverish the value of the whole, etc.” (Husserl 1988, p.96). Husserl adds “here it may therefore be the case that $G + G' < G$ ”. Or in my symbols:

$$(9) \quad G_1 > G_1 \bullet G_2.$$

Theses (1)-(9) raise numerous problems. The most important one is that the corresponding laws are all stated using the formula ‘may be that’. In other words, none of them is a nomological law. But it is obvious that neither their reading in statistical terms may be acceptable. The problem is understanding when and why the phenomena described by theses (1)-(9) arise. The real difficulty of the theory of organic wholes is therefore determining the conditions under which the phenomenon of organic wholes can be explained. In this sense, theses (1)-(9) are descriptive: they furnish *prima facie* information which must be further investigated and codified.

Axiom 2 in the previous section retains its form in the transition from sum-wholes to organic wholes and therefore apparently does not undergo variation. But, in fact, its function in the context of the three-category theory becomes much more important. Its analysis aids understanding of a difference repeatedly mentioned in the literature but the details of which seem to have evaded rigorous specification. The first step is to distinguish the two different relations seen at the end of section 2: the relation of *natural composition* (as Moore would term it) of the whole and its parts, and the relation of *axiological composition* of the value-whole in respect to the value of its parts.

Moore proposed something similar, although his fear of the naturalistic fallacy may have prevented him from seeing the real nature of the various relations at work. For Moore, in fact, the principal distinction was not between the two composition relations but between part/whole relations and part/part relations. This is certainly a significant difference, but it is not the most important one.

Although Husserl comes closer to the distinction drawn here, nor is he able to characterize the situation properly. He speaks of the difference between contributing

to the overall value and being a component of the overall value: “the sensible and emotive values of the individual elements contribute ... to the overall value, but they are not its components, and they form the value only as something essentially new with respect to it”. The meaning of this passage is then clarified: “let us imagine the elements muddled up; each still has its content and retains its value” (Husserl 1988, p. 96).

Consider a painting. In natural terms, a painting can be viewed as a structured set of brushstrokes. The brushstrokes are the components that constitute the painting as an object of the natural world. The value of the painting does not necessarily depend on the brushstrokes. The painting as an object of value is a whole composed of parts which may be indifferent, or partially indifferent, to the overall value of the painting. Although an individual patch of colour may, *as a whole*, have an intrinsic value, that same patch, considered exclusively as *a part* of the painting as a whole, may not be the bearer of any value relatively to the whole.

In other words, from the viewpoint of the value of the whole, the patch of colour should be considered as Indifferent. Had we not the category ‘Indifferent to value’, we would be obliged to evaluate it as a positive value or a negative value. However, it is evident that both alternatives are erroneous. If we see the patch of colour as positive, then it contributes to the value of the whole, increasing it; if we see it as negative, it diminishes the value of the whole. The former case is gainsaid by Husserl’s example of muddling the elements; the second example is gainsaid by the corresponding change in meaning that the patch of colour acquires: in this case it would be classified as a defect in the work.

Introduction of the category of axiological indifference therefore makes the theory of the composition of value-wholes much more expressive.

How can we distinguish cases in which a part contributes to the value of the whole from cases in which it does not? The answer is offered by Husserl: a part contributes to the value of the whole if its contains some *founding moment* of the value of the whole (Husserl 1988, p. 80). The key terms are *moment* and *foundation*. To clarify

them we must go back to the *Logical Investigations*, and in particular to the third, which is entirely devoted to the problem of parts and the whole.

Considered thus far have been only very limited aspects of the complexity of the part/whole relations which organize both the natural world and the world of values. Wholes display specific forms of composition which depend on their nature. A material whole requires material parts; a psychological whole requires psychological parts; and a social whole requires social parts.¹² Put otherwise: “a whole can have, and in general in fact has, parts which in themselves do not have value but which function as presuppositions for its constitution or for the constitution of parts endowed with an autonomous value”.

A value-whole has a dual structure. On the one hand it requires a corresponding bearer (material, psychological or social) – that is, something that enables it to instantiate itself. On the other, it has a specific axiological structure. Stating that the axiological structure of a value-whole cannot be related to a mereology is to defend the idea that the value of an axiological whole may not correspond to the sum of the values of its axiological parts.

We saw earlier that the third axiom of the theory of sum-parts imposed particularly restrictive constraints on the comparability of values. Apparently, the transition from sum-parts to organic value-wholes should not affect the acceptability of the axiom. The reasons for accepting or rejecting the constraints imposed by Brentano on the comparability of values apply to both theories.

6. Wholes of duration and wholes of intensity

Two natural extensions of the theory of value-wholes involve explicit consideration of temporal extension and intensity. Brentano briefly considered both extensions.

I begin with duration. Brentano writes, “(a) joy which endures an hour is better than if it only lasted for a moment” (Brentano 1902, p. 24). He then adds: “whoever

¹² Psychological and social wholes also require appropriate material bearers. Moreover, complex forms of bilateral dependence operate among them. For more details see Poli 2006a,b.

denies it” must accept “that an entire life full of joy with a single moment of pain is in no way preferable to an entire life full of pain with a single moment of joy”.

Although the idea is entirely reasonable, its formalization is not entirely straightforward. There follows one of the various possible forms that it might take: $G_{t'} > G_t$ on condition that t' is greater than t ”.

For Husserl the temporal duration should be treated as a sum: “the duration of a good thing or a bad thing should be viewed as a sum of partial values which correspond to the individual parts of time”. According to Husserl, this situation follows the fundamental law of linearity. In other words, “we may also say that $G_{nt} = nG_t$ ” (Husserl 1988, p. 97). I am not entirely convinced – indeed, I am entirely unconvinced – that temporality should be considered in these terms. Nevertheless, I shall not assume the task of conducting detailed analysis of the temporality problem here.

The other direction in which the theory of value-wholes develops is that of the intensity of value. In this case too, Brentano made the first formulation: “if one good, e.g. one joy is in every respect quite equal to another, only more intense, then the preference which is given to the more intense is qualified as right, the more intense is better” (Brentano 1902, p. 25).

Once again it is difficult to find an adequate formal translation of the idea. One possibility is this: if $i_1 > i_2$ then $i_1G > i_2G$.

Brentano forcefully rejected the notion that intensity can be understood in terms of a sum: “A more intense pleasure is never really made up of twelve less intense pleasures distinguishable as equal parts within it, as a foot is made up of twelve inches” (Brentano 1902, p. 80). And again “how foolish would any one appear were he to assert that the pleasure he had in smoking a good cigar increased 127, or, let us say, 1077 times in intensity yielded a measure of the pleasure experienced by him in listening to a symphony of Beethoven or contemplating one of Raphael’s madonnas”.

Oddly, Husserl claims that “Brentano draws a significant analogy between duration and intensity” (Husserl 1988, pp. 98-9). He then adds, “we must however

circumscribe the problem with greater exactness than he does”. Husserl’s conclusion is that “intensities are not like temporal magnitudes, but nonetheless intervals of intensity exist, and they perform a similar role to temporal intervals” (Husserl 1988, p. 99).

7. A word of caution

The arguments put forward here do not yet constitute a theory, even less a formal one. We do not know, for example, whether the axioms discussed are sufficient; and if they are not, what other axioms we should add. Nor do we know in detail the laws that govern the composition operator ‘ \bullet ’. Whilst the formal interpretation of the sum operator can be taken for granted, certainly not so can the composition operator. We have also seen that theses (1)-(9) in section 5 have more descriptive than structural value. It is therefore highly likely that development of a more thoroughgoing theory will conclude that the operator ‘ \bullet ’ subsumes an entire set of other operators.

The article has sought to assemble some of the clearer statements put forward by Brentano, Husserl and Moore. Construction of a formal axiology can only begin with these authors, but it obviously cannot restrict itself to what they have done. The entire article has been restricted to analysis of the relationship between the parts and wholes of value. Nothing has been said about retroaction from the whole to its parts; nor has anything been said about the influence undergone by a value-whole when incorporated into more comprehensive systems. A more satisfactory theory should consider these aspects as well.

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