

ON REFERRING TO GESTALTS

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Introduction

In what follows I will be concerned with unfolding the primary motivation for what I have called *mereological semantics* (MS).¹ MS interprets a more or less complex formal *language of mereology* (into which portions of natural language may be translated) with respect to a modularly structured domain of quantification. Various sorts of objects may be axiomatically defined and then included in the domain. The main interest the author takes in MS does, however, lie in the case when at least one sort of suitably defined *structured wholes* is present (i.e. one formalization of the Gestalt theoretical notion of structured whole). Although the formalism of MS may be of use for other purposes not tied to the concept of structured wholes, it is the intention of the author to model natural language reference (to extralinguistic objects) as reference to structured wholes. In this sense MS may be used to supplement the as yet informal analyses of *Cognitive Semantics* (in the sense of Johnson, Lakoff, Langacker, Talmy et al.). It may also prove a handy tool for modelling matters from Gestalt theory like sequences of Gestalt modifications or help to analyse cases of ambiguity or ‘illusion’.

I will unfold the motivation for MS from the point of view of a phenomenologist heavily leaning on the work of Aron Gurwitsch, and his conception of intentionality. Gurwitsch combined the tenets of Gestalt theory with that of phenomenology, and conceived of objects as Gestalts (or more generally: structured wholes). Reference will be made to the experimental results from empirical Gestalt theory.

1. Purely descriptive

Gestalt theory and phenomenology share some important principles, first of all a certain attitude towards the relation between the “life-world” and the world of science that emerges from the life-world by acts of idealization, formalization or generalization (Wiegand 1998). The principle to start with for both is a description of the phenomenal content: “Phenomenal objects are such and precisely such as they are experienced; for them, being and appearing are the same; thus the distinction between reality and appearance is not admissible here” (Gurwitsch 1936, 54).

The transition from the life-world to a mathematized world of science has become so familiar to us that we have started to reinterpret the life-world in terms of modern mathematical sciences (see also Rota 2001, Wiegand 2001). This reinterpretation of the life-world is one of the important themes in Husserl’s *Crisis* (see Husserl 1970). There Husserl says that the “idea” of a world in itself has bared science’s way to the phenomena of the life-world, and to subjectivity in general.

¹ See Wiegand 2007. Mereology is the theory of Parts and Wholes.

With regard to the relation between the life-world and science Max Wertheimer says the following:

“What is Gestalt theory and what does it intend? Gestalt theory was the outcome of concrete investigations in psychology, logic, and epistemology. The prevailing situation at the time of its origin may be briefly sketched as follows. We go from the world of everyday events to that of science, and not unnaturally assume that in making this transition we shall gain a deeper and more precise understanding of essentials. The transition should mark an advance. And yet, though one may have learned a great deal, one is poorer than before. It is the same in psychology. Here too we find science intent upon a systematic collection of data, yet often excluding through that very activity precisely that which is most vivid and real in the living phenomena it studies. Somehow the thing that matters has eluded us.” (Wertheimer 1924)

From Gurwitsch’s methodological reasoning we may extract the following tenet that we may aptly refer to as the *principle of phenomenology*:

“*It is through acts of consciousness and systematically grouped and concatenated acts that objects, processes, events, and occurrences of any description whatever appear and display themselves as to what they are and as to what they count for in our conscious life – in our practical, theoretical, artistic, etc., life.*”²

The *principle of phenomenology* acknowledges the fact that the realm of consciousness can, by no means, be circumvented, it is a privileged realm in and through the medium of which we have knowledge of ‘the world’ – including the brain, all sorts of mechanisms, and any other sort of phenomena one may think of.

However, this fact has – *nota bene* – nothing to do with *idealism* in any sense of the word (not even with transcendental psychologism³ or transcendental idealism the latter of which has been propounded by the late Husserl). There are sense-data, and there may be “something out there in the world” (scare quotes!), but if there were no subjectivity that “something” would have no meaning, and it would not be objective in any reasonable sense of the word, since (intersubjective) identifyability is a *conditio sine qua non* for objectivity (see sect. 2 below, see also Gurwitsch 1940).

Phenomenology obeys the grammar of consciousness. The key-notion within the phenomenological theory of consciousness is the concept of “intentionality”. If used terminologically the notion of “intentionality” signifies the objectifying function of consciousness, *it is the source of the existential belief*. Within the phenomenological framework it would be circular to view intentionality in the same way as we view *things* (individual objects, relations, universals etc.)⁴ since we would allow *the effect* of our intentionality (namely objectivation) to be the principal presupposition for the

² Gurwitsch 1966, 90; my italics. The chosen formulation of the Principle of Phenomenology deviates from how epoché is paraphrased in Petitot / Varela / Pacoud / Roy (1999), chap. 2.1.1

³ See Seebohm for a taxonomy of various sorts of psychologisms.

⁴ In Armstrong & Malcolm 1984 concepts like “mind” are viewed as “theoretical postulation” (see esp. 143 ff.) as encountered in theories of physics. Clearly that comparison is conceived in the natural attitude. That attitude is claimed to be exclusive: “there is no essential difference between the first-person case and the other-person case. In other sorts of case, an inference can be made from actually observed behaviour in the presence of stimuli” (144).

analysis of intentionality – no hand can shake itself. From these brief remarks (on a complicated theory) even the reader with no background in phenomenology may see that the gist of the principle of phenomenology lies in the following statement. Gurwitsch says:

“... consciousness proves to be a privileged realm, in a certain sense prior to every mundane domain, insofar as for its very existence every mundane domain necessarily refers to consciousness, viz., to those acts and systems of acts through which items pertaining to the domain in question present themselves.” (Gurwitsch 1955, 90).

A prominent phenomenological expression which summarizes the principle of phenomenology is that “*consciousness is not mundane*”.

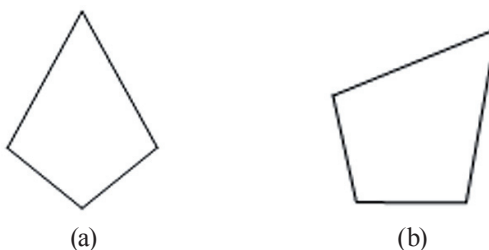


Table 1

At the very first sight fig. (a) and (b) look different. It may take us a second to realize that they are actually equal. Assuming the descriptive attitude means to make that difference explicit. (a) and (b) are phenomenally different. It needs an abstraction from their orientation to see that they are really the same. We make that explicit by saying that (assuming the Euclidian plane) a *rotation* leads from (a) to (b). But this makes a phenomenal difference. Considering these objects as equal or not depends on whether one exclusively focuses on their measures. One may even grant a privileged role to the slightly abstract attitude of “seeing” them as equal – but there are cases when (esp. vertical) difference is important. Objects in different orientation (as regards the vertical axis) may assume different roles. In these cases it would simply be false to say that we deal with the same objects.

2. Objects as Structured Wholes

In the following a conception of (natural language) objectivity will be unfolded that is in keeping with the tenets mentioned in the previous section. The principle of MS – reference is reference to structured whole – tries to model natural language intentionality, i.e. objectification on the level of natural language. Objects on that level are identifiable to a better degree than the *proto-objects* on prelinguistic level, but are not as abstract as mathematical objects. Objects we refer to on the level of natural language are *structured*, they are not just objects *a, b, c, ...* ‘equipped’ with properties *F, G, ...* In what follows we will unfold the view that life-world objects are (more or less pregnant) *Gestalts* or synonymously *Structured Wholes*. This view has essentially been worked out by Gurwitsch who took his starting point at Husserl’s phenomenology.

A preliminary-definition of intentionality is to say that intentional consciousness is “*consciousness of something*”.⁵ Although this is not wrong, this introductory notion must be augmented by reference to the actual problem which the theory of intentionality is intended to solve. David Hume made the first effort to formulate the problem at stake clearly when he asked how subjects bring about ideas of objects:

“When we have been accustom’d to observe a constancy in certain impressions, and have found, that the perception of the sun or ocean, for instance, returns upon us after an absence or annihilation with like parts and in a like order, as at its first appearance, we are not apt to regard these interrupted perceptions as different, (which they really are) ... this interruption of their existence is contrary to their perfect identity, and makes us regard the first impression as annihilated, and the second as newly created, ...” (Hume 1739, 199)

In the cognitive sciences of our day that old Humean problem appears as an important part of the so called “binding problem” (see Roskies 1999). Hume’s answer to that problem is well known: as he could not provide an empiricist foundation for binding multiple expressions together into the unity of an object he declared our apprehension of identical objects as mere “belief”. He thought:

“... that our ideas of bodies are nothing but collections formed by the mind of the ideas of the several distinct sensible qualities of which objects are composed and which we find to have a constant union with each other.” (Hume 1739, 219).

“Hume’s problem” is indeed the immediate starting point for the phenomenological theory of intentionality (see Husserl 2001, §§ 1-5; Gurwitsch 1940, 1959, 1982). In its phenomenological (and terminological) use intentionality is (by definition) the *objectifying function of consciousness*⁶ and the phenomenological theory of intentionality is a descriptive theory of how it is possible that we apprehend identical objects. The theory of intentionality does not explain away our apprehension of objects but tries to explicate the structure and the structural features of that apprehension. In that sense we can say that the above-mentioned preliminary definition of intentionality fails to acknowledge the actual problem of a theory of intentionality: just as every perception of or theoretical reference to an object through a particular aspect of the object has its own “something” as correlate, we still need to explicate how it is that an *identical object* can present itself from a manifold of perspectives, and through a manifold of parts (like shape, color, motion etc.). Especially with regard to the field of perception Gurwitsch’s account of intentionality is comparable with present-day Gestalt theoretical approaches to the binding problem within the realm of perception (as presented e.g. in Spelke 1990). Due to the limitations of this paper, we cannot go into phenomenological details of intentionality like its various types and various sorts of evidence. In what follows we will restrict ourselves on two main characteristics of the phenomenological theory of intentionality.

⁵ See also Bolton and Hill 1998, chap. 1.3.1.

⁶ Gurwitsch 1940, 138. There is certainly non-intentional consciousness i.e. consciousness in which no objects are experienced, like in pain etc.

The first one is the *typicality of all consciousness*. The concept of “cognitive type” is omnipresent in Husserl’s work but is exposed to some detail in his *Experience and Judgement* (see §§82, 83) only. It is worth mentioning that the analysis that Husserl had laid down until 1928 already come close to what Eleanor Rosch provided on grounds of empirical psychology (see e.g. Rosch 1973, 1976). Although the two approaches have different starting points they eventually give a similar account of the role that previous experiences play for perception and language. We will, however, restrict ourselves to a rough sketch of Husserl’s theory of cognitive types (that has been adopted by Gurwitsch). Husserl stresses experience and association as source of the typicality. He says that the typicality initially had “its ground in the passive associative relations of likeness and similarity, in the ‘obscure’ recollections of the similar” (Husserl 1973, 150). For Husserl a type like “dog” is the residuum of all experiences one has had with dogs.⁷ In that sense a type is never really completed, but it provides core associations that direct our cognition and practical dealing even with relatively unknown things (or situations). The *familiar* things in our daily life (like my kitchen appliances) are then exactly those things, perceived in the light of their type, that possess a minimal amount of indeterminacies in their normal characteristics and behaviour. This kind of familiar object gives rise to a certain “obviousness” and a certain “automation” in our dealings with them (in other words: their *meaning* is prelinguistically embodied in my dealings with them). But this behaviour presents the phenomenologist with a highly complicated set of *explicit* and *nonexplicit* expectations and memories (in phenomenological argot: re-tentions and pro-tentions). In fact, one is inclined to compare the typicality of consciousness with a gigantic ‘network’ of experiences. The ‘weight’ of the reciprocal ‘connectedness’ (i.e. relevance) of its parts, however, is situation-dependent, varies through the history of the subject and is, in turn, influenced by the goals and (emotional) motivation of the subject. We submit that protentions and retentions make up a structure that heavily contributes to what Rock 1985 calls the “intelligence of perception”.

The second feature we need to mention is the tension between empty and filled intentions. Empty intending is, generally and roughly stated, anticipation of evidence (i.e. filled intention). Most of the time empty intending is not really empty in the sense of *being devoid of all material content* (although it is empty in the sense of not having immediate experience of the expected content). If, e.g., we perceive a house from the front, empty intentions are present that (prelinguistically) anticipate structural features of the house that are not seen yet, but will nevertheless guide our dealing with the house. Husserl says: “For example, every outer perception includes the reference of those sides of the perceptual object that are actually perceived to those sides of the intended object, that are unperceived and unintuited, but yet anticipated and expected” (Husserl 1960, 82).

In his *Analyses Concerning Passive and Active Synthesis* §18 Husserl analyses a variety of different types of empty intending (acts of memory and fantasy among them) under various aspects. We will, however, focus on the relation between empty intending and the typicality of consciousness. It is exactly that connection which

⁷ This is confirmed by present-day cognitive psychology, see, e.g. Zukier 1996, 472.

will be used in our characterization of empty intending: we will say that the material determinations of empty intending vary on the levels we have chosen to consider. From the view of things we said about empty intending it is also obvious that it is the key to the core problem of intentionality. Gurwitsch (e.g. 1959, 1982) has vigorously argued for a conception of objectivities as organized totalities or *structured wholes*. In that view it is prelinguistic anticipation (i.e. pro-tending) plus prelinguistic remembering (i.e. re-tending) – both are special forms of empty intending – that glue together Hume’s “distinct sensible qualities of which objects are composed”. In that sense objects are *organized totalities* since their parts stand in mutual functional dependencies that – up to a rather high level of intentional life – stem from the object’s *type* (i.e. from our previous experience with the problem sphere). Complex types may also be seen as corresponding to the “scripts” and “scenarios” of cognitive psychology (see Abelson 1981). The script “restaurant” serves to identify a yet unseen place as a restaurant, and it provides the preexplicit expectations that guide our behaviour inside restaurants.

In the next section we will explain why the notion of structured whole lends itself to capture the basic intuitions that we have described so far.

3. Structured Wholes as Objects of Reference

Taking Carl Stumpf’s work as his starting point, Husserl deals chiefly with two concepts: *whole* and *part*. In addition, he treats two two-place relations: the *part-of-relation* and the *relation of foundation*. Given the restricted scope of this paper, it is not necessary to introduce the various distinctions that Husserl unfolds in his *Third Logical Investigation* (Husserl 1970), as well as in §§ 30–32 of his *Experience and Judgment* (Husserl 1973). Regarding the concept of whole, it is sufficient for our purposes here to focus on the concept of pregnant whole. For example, in § 22 of the *Third Investigation* Husserl defines pregnant wholes as those “wholes that break up into pieces,” that is, into independent parts (Husserl 1970, 273 / German edition 1984, 468). The independent parts that arise from breaking up such a whole also have parts of their own. Furthermore, in the *Third Investigation*, pregnant wholes are defined as wholes that have a figural moment (synonymously, a “Gestalt quality” in Ehrenfels’s sense) as an immediate “dependent” part. For Husserl this is a unifying moment, which makes a pregnant whole more than a mere (mereological) sum of parts: “It is not a mere sum of parts, such as in an aggregate, the explication of which also leads to independent determinations” (Husserl 1970, 162 / German edition 1985, 141 f.).

Husserl distinguishes pieces from dependent parts (i.e. moments) in various ways. In the present context a definition advanced in the *Third Investigation* is important. There he defines the concept of piece (and, indirectly, of moment) by means of the absence of those functional dependencies to which dependent parts, along with other parts of a given perceived whole, are subject:

“The head of a horse can be presented ‘on its own’ or ‘cut off,’ i.e. we can hold it in our imagination, while we allow the other parts of the horse, and its whole intuited setting, to alter and vanish at will. ...the content of such a ‘phenomenon’ does not in the least involve anything entailing a self-evident, necessary, functional dependence

of its changes on those of coexistent phenomena.” (Husserl 1970, 234 / German edition 1985, 439).

Husserl’s definition of pieces with reference to the absence of functional dependencies, as well as his definition of moments with reference to the concept of dependency (Husserl 1970, § 5), the latter definition having been developed by extending Stumpf’s work, was the starting point for Aron Gurwitsch’s fundamental critique of Stumpf and Husserl.⁸ Based on Gestalt theory, his critique accuses both Stumpf and Husserl of holding positions close to associationist psychology.

The concept of the Gestalt was used in a technical sense for the first time by Ehrenfels, then further developed in the various schools of Gestalt psychology, and finally given its definitive formulation in the work of Koffka, Köhler, Wertheimer, and Lewin. According to Wertheimer (1922, 52-54), a Gestalt is

“an ensemble of items which mutually support and determine one another. Thus they realize a total structure which governs them and assigns to each of them (as a part of the whole) a function or a role to be performed as well as a determinate place in that whole.” (This quote is taken from Gurwitsch 1966, 25.)

Koffka stressed that a Gestalt is marked by the fact that every part receives its properties and its place by being a part of the whole.

Already in his first mereological analyses, Gurwitsch avoided the term “Gestalt” and instead used the concept of *structured whole*, which is a gradual concept and thus avoids any unwanted connotations of shape and the like. It can therefore be used as a generic concept, that is restricted, firstly, by the concept of the pregnant structured whole (as it were, the pregnant Gestalt); secondly, by the concept of a mere mereological sum (an aggregate); and, thirdly, by chaos. It is characteristic of a structured whole that no part of it can be altered without influencing the entire whole. By contrast, an aggregate is a (minimally integrated) structured whole that is only minimally affected by the modification of one of its elements. Not even adding or removing a unit alters an aggregate in any qualitative sense. Also important here is that at least in the perceptual field neither the aggregate nor chaos is encountered in its pure form, whereas the pregnant structured whole occurs frequently, particularly under experimental conditions.

In keeping with basic tenets of Gestalt theory, Gurwitsch points out that a part qua part is always part of a structured whole, and in this sense a given content is subject to functional dependencies since each part of a structured whole represents the whole, and the whole in turn assigns to each element its functional significance (i.e. its role) and meaning. On the basis of this insight Gurwitsch criticizes Husserl’s example of a morphologically given rectangle. Husserl holds that a particular side of a rectangle is “independent” if we can freely vary the entire surroundings of this side—all that appears along with it—while the side itself is maintained in its identity. On his view the side in question is a piece of the rectangle since there are no “functional dependencies” that would prevent one from generating changes and variations. Yet

⁸ Gurwitsch criticized the Stumpf-Husserl-approach as early as 1929 (see Gurwitsch 1966a).

seen from the perspective of a strictly descriptive phenomenology, as well as that of Gestalt theory, a side of a (morphologically given) rectangle that has been separated from the rest of the configuration is no longer “a side of a rectangle.”

It can now be called, say, a “line segment.” But regardless of how it is referred to, it has nevertheless undergone a far-reaching modification; its physiognomy has changed, and it has become phenomenally different. Neither configurations nor ‘individual’ objects are made of atomic parts that could be extracted from a given Gestalt-nexus, contemplated on their own, and then inserted into a different Gestalt-nexus, while remaining identical throughout those operations. No part of a given structured whole—and this is the thrust of Gurwitsch’s critique—can be given outside of functional dependencies such that it could have absolute qualities and attributes, independently of all combinations, variations, and contexts in which this part could be given. When it is inserted into a new context, a part receives a new role to play within and for this new context.

Under the heading “A New Distinction between Independent and Dependent Parts,” Gurwitsch considers concepts such as ‘dependent part’ and ‘moment’ as abbreviations of more precise definitions, or as shorthand for “items not lending themselves to being singled out or made independent” (see Gurwitsch 1966a, 264). On the other hand, he regards the concept of piece as an abbreviation for “items susceptible of being made independent” (*ibid.*). A part belonging to the latter category can be singled out of a given context. But it will then undergo a modification and become phenomenally different.

From the standpoint of Gurwitsch’s critique, Husserl’s definitions suffer from a mistake in the phenomenological description on which they rest. The mistake proves to be a confusion of separability and separatedness, where the latter holds of a part that has already been singled out (and thus thematized “in itself”). The reason that Husserl and Gurwitsch reach different results, then, is that each describes a different experience (Gurwitsch 1966a, 262): Husserl considers the line as a theme in itself, which is to say that even if it is apprehended in the context of a configuration, only the line itself is meant; its separatedness is defined. By contrast, Gurwitsch does not consider the line as standing out against the background of the rest of the configuration; instead, at issue is the entire configuration in the *How* of its givenness. The configuration is the theme and the line is a part of the theme. Phenomenologically this part is a constituent susceptible of being singled out, though not singled out in actuality. Of course, a Gestalt can be ruptured, such as when a single side is removed from a rectangle, but singling something out from a context, or separating a content from a given context, is an operation that will have grave impact on the content singled out.

4. Conclusion

In Wiegand (2007) we have provided a formalization of the notion of *Structured Whole* that tries to capture what we have so far in the framework of this essay. Our intention has been to provide a formalism that (a) makes the notion of structured whole operationable for linguistics, applied ontology, formal logic and other branches

of science. (b) we have tried to provide a motivation that make it plausible that the formalism provides the possibility to “build in” (axiomatized versions of) the tenet of Gestalt theory. We are fully aware of the fact that formalization *per se* implies a departure from the life-world, but if “working models” of the life-world are possible at all then these models must come as close as possible to theories that appreciate the *phenomenal givenness*.

Summary

This paper contemplates the concept of Gestalt from an epistemological (i.e. phenomenological) point of view – and in that sense is not motivated by (formal) ontology. The analysis provided may contribute to an understanding of *reference to extralinguistic objects as reference to structured wholes*. As such they may provide a motivation for the formal semantics presented in Wiegand (2007) by unfolding a conception of intentionality that is oriented towards Gestalt Theory. Structured wholes are in particular viewed as *mereological objects* (i.e. they are seen through categories like “part” or “whole”) so that the informal notion of structured whole becomes usable within the framework of formal semantics.

Zusammenfassung

Der Beitrag betrachtet den Gestaltbegriff aus einem erkenntnistheoretischen (d.i. phänomenologischen) Blickwinkel und ist nicht (formal-)ontologisch motiviert. Die Analysen sollen dazu beitragen, *Referenz auf außersprachliche Objekte als Referenz auf Strukturganze* zu analysieren und die in Wiegand (2007) vorgestellte *formale* Semantik durch eine an der Gestalttheorie orientierte Konzeption von Intentionalität zu motivieren. Insbesondere werden Strukturganze (auf die wir uns sprachlich beziehen) als *mereologische Objekte* (d.h. mit Hilfe von Kategorien wie “Teil” oder “Ganzes”) betrachtet, wodurch Strukturganze (informeller Begriff) für formal-semantische Modellierung operationabel gemacht werden.

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