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Ceteris Paribus – Or: How to Bring Things in Order Comments on Prof. Sinico’s “Epistemic Line of Explanation ...”

1. Preliminaries

In his paper – which concerns the methodological prerequisites of experimental phenomenology – Prof. Sinico tries to reason that the old Hempel-Oppenheimer N-D (nomological-deductive) model of (scientific) causal explanation (in the narrow sense excluding stochastic explanation)¹ should be recognized as a valid model capturing law-formation within “experimental phenomenology” (and Gestalt theory).

Phenomenology – at least as understood in the Husserlian tradition – approaches scientific-theoretical problems through *genetic analysis*. The methodological device of genetic analysis is unfolded e.g. in Husserl’s *APS* or in his *EJ*. At least when used within the “Phänomenologische Wissenschaftstheorie” genetic analysis strives for an explication of how mathematical, formal-logical or physical concepts, methods or cognitive structures such as algebraization, formalization, proof, truth or explanation etc. originate out of (resp. are founded on) perception.² For the phenomenological theory of science the source of mathematical or physical evidence is ultimately the evidence of perception, out of which formalizing abstraction and processes of idealization make available and found the evidence of mathematics, logics or physics. In this sense Husserl claimed in the *Crisis* that his phenomenology is the “true fulfillment of empiricism”. In this sense the phenomenological theory of science is essentially *epistemic* in nature and omits ontological projections.

The following paper is not the place to go into details of phenomenological methodology. The reader is referred to Edmund Husserl’s *Introduction* of his *FTL*, to *EJ* or his *Crisis*. Wiegand 1998 and 2008 rest on Husserl’s and Aron Gurwitsch’s phenomenological theory of science, and cope with methodology and abstrac-

¹ Details concerning the ND-model as well as a selection of literature connected with this concept may be found in Sinico’s article.

² On this see also Gurwitsch 1974, 142ff.

tion (esp. within the formal sciences). Wiegand 2000 and 2001 develop a *phenomenological semantics* (i.e. the phenomenological theory of the genesis of *modal categories* incl. *truth* and *falsehood*). Wiegand 2007 and 2010 provide a formal logic (including a formal semantics) of parts and wholes that may lend itself to model structures of cognitive linguistics³ and of creative processes in general.

One last remark is necessary regarding the concept of “experimental phenomenology”. I am sympathetic with Don Ihde when he says that “... doing ... a description calls for putting into practice a certain method of inquiry.” (Ihde 2012,3). In fact phenomenology has always rested on concrete descriptions (see e.g. Husserl’s descriptive analyses underlying his phenomenological *law of the perspectivity of all perception* as provided in §§ 1 – 5 of APS). The “descriptive laws” of Phenomenology and Gestalt theory that we gain from the scrutinating descriptive analysis of perception are, however, not experimental in the sense that these laws could be refuted by an empirical finding next year. These laws are, what Husserl (luckily or unluckily) has called *eidetic*: they are materially necessary (like there is a physical necessity as distinguished from formal mathematical necessity) since the cognitive structure behind them is a variation on the side of the subject of the variables involved so that these laws no longer depend on a particular (empirical) content. In what follows I refer to the Gestalt Laws as enlisted in Rock and Palmer 1990.

2. On Association and its Indeterminacy

Phenomenological analysis reveals the origin of logical forms (as e.g. the form – or *category* – of an *individual object*) at a level located well before the layer of natural language and prior even to *attentive* perception. The material structures of the sensuous fields given at this level of *passive constitution* are the structures of “associative synthesis” [see *EJ* or *XI*], where, in accordance with Husserl, every form *in which contents are paired* can be designated as association. Pairings can be presented as contrasts as well as blending. In the optic field, for example, a red spot stands in contrast to a background of another color. Yet contrast-pairs always possess common aspects as well. The pair “red spot–background” possesses a kinship in, for instance, the sense of their common givenness in the optic field; the pair “red circle–green circle”, which involves contrasting colors, possesses a kinship in the sense of similar morphology. Several red spots which are paired with one another through “blending from a distance” stand out in their commonality as a configuration against a background [cf. *XI*,§29]. It should be noted that these indications already suggest the phenomenological explication of two classes of *Gestalt*-laws, namely laws of figure-background relation and laws of organization (of a *Gestalt*).⁴

³ See e.g. Lakoff 1977 or 1987.

⁴ An exposition of (the various types of) Gestalt laws can be found in Carterette / Friedman 1974, 186ff.

An immediate consequence of the description thus far is that which stands out *qua standing out* can only be given insofar as it *stands out from a background*. In this sense, what has an effect within the passively given field of perception is not an “individual datum” or a “manifold of sense-data” (these are at best abstracting constructions), but rather *contrasts* [cf. XI,§29]. Possible examples include not only the spontaneous turning toward an individual loud bang or whistle, but also the apprehension of the *discontinuation* of “sense-data”: we hear that the clock *did* tick even after it has stopped ticking.⁵

It is of fundamental importance to understand the standing-out at the level of associative synthesis not as “individuals” or “configurations” in the sense of a higher (less originary) stage of cognition. The stages of associative synthesis offer only *proto-structures* (*proto-individuals*, *proto-configurations*, *proto-logical forms*, *proto-causality* etc.) which are only objectified in higher levels of consciousness. This layer of passive constitution may be isolated phenomenologically, and completely characterized through the lawful structures of associative synthesis. Here no *ego activity* is observable; this only comes into play with the attentive *turning-to* (a first level of objectivation), where the subject looks into the affections now discernible at the level of prelinguistic – though no longer purely passive – constitution.⁶

One of the most important results of phenomenology consists in uncovering the *contextuality of all consciousness*. With regard to perception, the principle of contextuality has at least two dimensions: (i) as a multi-form relation between a perceived (proto-)object and other (proto-)objects given along with it in the sensuous-field; (ii) as a relation between a particular perspectival perception of the (proto-) object (speaking subjectively) and the entire course of perception, the context in which each perception must fit if it is to be meaningful.⁷ Gurwitsch coined the term “sense-conformity” for this relation, of which Wertheimer’s principle of “good continuity” can be seen as a special case.⁸ At the level

⁵ In 1912 Wertheimer was already able to prove experimentally that in the perception of movement, transitions are also seen where a corresponding base-line stimulus is *missing* (Wertheimer 1912). This fact was tantamount to the overturning of the constancy-hypothesis (on this see Gurwitsch 1966).

⁶ In standing out, every content possesses an *affective tendency toward the ego* [cf. XI, §§32ff.], just as the ego possesses a tendency toward the standing-out (which can also present itself as, for instance, a drive or a sudden idea that appears from out of the ego-background and ‘distracts’ consciousness).

⁷ See the concept of inner- vs. outer-horizon in *EJ*, §8.

⁸ Gurwitsch 1959, 436. For the phenomenologist this connection is of particular interest, in that the structures of perception gained in phenomenological analysis find their counterparts not only in gestalt-psychological laws but increasingly within the results of contemporary neuro-scientific research as well. While this research was initially determined by an atomistic approach – in the sense of what is called in Schiller 1996 the “one-area-one-function hypothesis” – empirical results increasingly speak in favor of the contextuality-principle: “Already the responses of retinal ganglion cells and certainly of striate cortex cells, is determined not only by the specific stimulus that appears in the center of the cell’s receptive field, but, as just shown, on what other stimuli appear in the surrounding parts of the visual field and on what the state is of the system. According to these new views,

of passive constitution, contextuality presents itself in, among other things, the essential determination of *momentary* perception through *retention* (pre-explicit recollection) and *protention* (pre-explicit expectation).⁹ In other words, the perception of an object, for example, in the visual field from a particular perspective is essentially determined through what was seen immediately before and what is expected to be the immediately following perspective. Accordingly, every perception contains *more* than what the talk of sense-data actually allows, since the references *co-determine the meaning* of the momentary perception: “Expressed noetically, perception is a mixture of real presentation, which makes the presented intuitable in the mode of original presentation, and empty indicating, which refers to possible new perceptions.”¹⁰

Husserl also refers to the protentional expectation as *certainty of pre-expectation*¹¹. The structural connection of momentary perception, expected continuation of the course of perception, and *fulfillment* of the expectation is the structure of the *proto-conditional* which will – on the higher level of formalized thought – lead to the category of “if ... then ...” in the strongest sense, and also to a formalized concept of causality. However, the unbroken continuation of perception in the sense of continual fulfillment of the certainty of pre-expectation is in fact rarely given. (Proto-)*Modalization* should be understood as the *inhibition* of the perceptual running-off. It interrupts the course of perception’s carrying itself out in plain certainty, and works back into the retention-continuum [cf. XI,§7]. Here we see

“that the simplest certainty of belief is the primal form and that all other phenomena, such as negation, consciousness of possibility, restoration of certainty by affirmation or denial, result only from the modalization of this primal form and are not juxtaposed, since they are not on the same level.” [EJ,100-1].

It is important to see that the *proto-conditional* is also the proto-structure of what – at a pretty high level – may be modeled in terms of the Hempel-Oppenheim formalism. However, for the purpose of this paper it is important to point out that at least on the level of association there is no *descriptively accessible* law determining whether certain contrasts are associated according to “similar morphology”, according to “blending from a distance” or in another way altogether. Since

then, most neurons in the visual system are not dedicated to the analysis of a singular, highly specific basic feature of the visual scene.” (Schiller 1996, 28-9; on this see also Kovacs 1996.) Even older publications already proved that lines at the neural level – in the sense of a physiologically realized certainty of pre-expectation, as it were – are extended in order, as the case may be, to continue or to conclude contours in the optic field even where “sense-data” are missing, see for example Peterhans / Heydt 1989 and Heydt / Peterhans 1989.)

⁹ Analyses of the protention-retention-continuum are available in for instance XI, §§36-41, as well as X.

¹⁰ “Das Wahrnehmen ist, noetisch gesprochen, ein Gemisch von wirklicher Darstellung, die das Dargestellte in der Weise originaler Darstellung anschaulich macht, und leerem Indizieren, das auf mögliche neue Wahrnehmungen verweist” [XI,5].

¹¹ “Vorerwartungsgewißheit” [XI,30].

the extent of this paper is limited we cannot go into details of concepts like *contextuality*, *goal-directedness in creative processes* or into the concept of *emergence*¹². The indeterminacy of association is a feature of Husserlian phenomenology that is in accord with Wertheimer's analysis of *Productive Thinking* (1982)¹³, and with modern theories of emergence.

3. On How to Bring Things in Order: Ceteris Paribus

The reason why it seems difficult to impose an abstract model of explanation on phenomenology or Gestalt theory is that the latter claim to be (and in fact are) based on immediate description. In my paper of 2008 in this journal I have touched on methodological questions regarding the principle that

*“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.”*¹⁴

It seems difficult to allow for this principle (or even weaker versions like “an object has to be taken completely and exclusively in that manner in which it presents itself to the [perceiving] subject” et al.), and on the other hand qualifying it as restrictive to “intra-phenomenal dependencies” (as if there were factors not presenting themselves through acts of consciousness, but being at least equally important).

Description includes formal as well as qualitative or material phenomena, and it excludes all kinds of abstractions (formalization, idealization, generalization...) that, on the other hand, are essential to abstract scientific theory formation. Out of this very reason it is the case that:

- a. An abstract model of explanation does – in spite of its theoretical value *on* and *for* the abstract level (!) – remain counterintuitive even when referring to the realm of concrete and practical science (Sinico himself mentions the famous Bromberger 1962 example in his paper, see p. 373)
- b. Gestalt laws are in fact *not* deterministic (since association is not), and they are certainly not necessary. The lawlike behaviour of association should be located within the framework of cognitive theories that cope with concepts like emergence, goal-directed productive thinking or other ways of theorizing about pre-scientific organization of the (perceptual) world.

¹² See e.g. Stephan 2005, also Crick 1994.

¹³ Which, in turn, matches with Gurwitsch's “attentional modifications” (see Gurwitsch 1966a).

¹⁴ 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.

There are structures of association like the law of similarity or the law of proximity (see Rock and Palmer 1990) that may be explored in accord with what was said in section 2 above. However, under laboratory conditions one can generate situations within which these laws are given in an approximately clear fashion. On the other hand one can also generate situations in the laboratory within which it is observable how these laws conflict. Beyond that there are situations within which association is unstable, and alters before our eyes. In the following “experiment” the law of proximity is overwritten by the law of similarity:

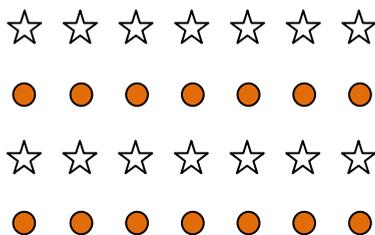


Figure 1

This is so, because similarity within figure 1 appears “strong” and obvious. However, one can – by a “change of attitude” – separate the figure into two pairs (each pair consisting of a line of spots and a line of stars). The energy needed for this cognitive transition can – in an informal way – be correlated with the “degree” of “how much” the star-shape differs from the circle-shape. Graduality and fuzziness are important factors for association.

The next example is a little more difficult. The author’s conjecture “if b and c are the nearest two dots they will necessarily form a group” (p 366, line 12 from below) is in a trivial sense refused by the dotted angle below. Here a and b are closer to each other than to any other dots in the picture, nevertheless they do not group. Why? Because another Gestalt law interferes, namely that of good continuity.

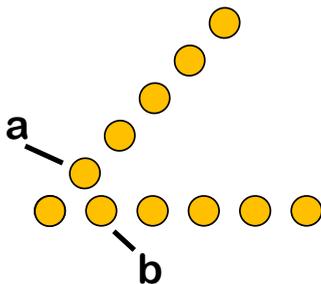


Figure 2

Again: There are no deterministic (meta-)laws that tell us when a particular

Gestalt law “determines” the scene. However, abstraction is a Mephistophelian temptation: It pretends to make the world predictable and controllable (in fact abstraction does make a world predictable and controllable, but only for the price of idealization and abstraction from all material content). Lester Embree has put it such: we hear because of sound waves, but we do not hear sound waves¹⁵.

Ceteris Paribus is a means to restore predictability. C. p. allows us to study particular causal relations under idealized conditions (i.e. without unwanted factors interfering). Regarding figure 2 this means that we simply rule out the law of good continuity. Doing so it seems as if we got a tautological result like: if spots are sufficiently close to each other, *and* spots that are close to each other group (Law of Proximity), then – under the additional assumption that no other laws are allowed for (c. p.) – these spots do in fact group. Is c. p. a means to bring things in order i.e. to arrange things in such a fashion that the wanted solution results? A closer look shows that this is in fact not the case. Take a domain of just two spots: $D = \{a, b\}$, we abstract from all contextuality, esp. from a background like “the lifeworld”. Then a and b are certainly *not* structured by the law of proximity. In fact D exemplifies the case of “No Grouping” in Rock and Palmer 1990 (p. 60), so we cannot even say that a and b are *not* close to each other. A judgment like *spots a and b are close to each other* inevitably presupposes objects in the background that are *not* close to each other. In this sense a concrete instance of an arbitrary Gestalt Law presupposes a background. This is so because we are talking about life-world-domains. It would therefore not work if we defined a relation *Prox* on D so that a and b are close to each other *by definition*. Again the answer is that we cannot do so because Gestalt laws are material relations. If we consider relations like *Prox* devoid of all content we have lost Gestalt theory.

Summary

In this paper the value of the Hempel-Oppenheimer model of causal explanation is recognized for the scientific realm, but refuted for phenomenological theories that remain strictly descriptive. Lawlikeness and theory formation within phenomenology (and Gestalt theory) are not subject to the N-D model of explanation because phenomenological laws (like the 'law of the perspectivity of all perception' etc.) have a material content. Speaking phenomenologically: scientific laws are reached by formalization, idealization and generalization while phenomenology and Gestalt theory cope with realms that are still materially determined. In the end this is shown with regard to the law of proximity (within Gestalt theory) which rests on a ('lifeworld') background. A formal model of proximity is shown to fall short of this important Gestalt law.

Keywords: N-D-model, idealization, abstraction, ceteris paribus, Gestalt Laws, proximity, contextuality.

¹⁵ Embree (1979)

Zusammenfassung

Im Folgenden wird das Hempel-Oppenheimer Erklärungsmodell für den Bereich wissenschaftlicher Erklärung zugelassen, als Modell für phänomenologische Theorien - solange diese strikt deskriptiv bleiben - jedoch zurück gewiesen. Gesetzmäßigkeit und Theoriebildung können im Rahmen der (experimentellen) Phänomenologie genauso wenig wie in der Gestalttheorie durch das Hempel-Oppenheimer N-D-Modell expliziert werden. Der Grund dafür ist, dass phänomenologische Gesetzmäßigkeiten (wie z.B. „die Perspektivität der Wahrnehmung“) inhaltlich bestimmt sind. Phänomenologisch gesprochen ist wissenschaftliche Theoriebildung durch Formalisierung, Idealisierung und Generalisierung charakterisiert, während sich Phänomenologie und Gestalttheorie auf inhaltlich bestimmte Gegenstandsbereiche beziehen. Dies wird am Ende mit Bezug auf das Gestaltgesetz der Nähe gezeigt, indem ein simples Modell dieses Gesetzes gegeben ist, das jedoch kontraintuitiv ist.

Schlüsselwörter: N-D-Modell, Idealisierung, Abstraktion, Ceteris Paribus, Gestaltgesetz, Gesetz der Nähe, Kontextualität.

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APS=XI

EJ=Experience and Judgment. Transl. J. S. Churchill and K. Ameriks

FTL=Formal and transcendental Logic. Transl. D. Cairns (see XVII)

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