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From the Modern Transcendental of Knowing to the Post-Modern Transcendental of Language

Unit 6: The intentional version of the transcendental of knowing in Husserl and the foundations of logic and mathematics. I

Course WI-FI-BASTI-ER

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By

GIANFRANCO BASTI

Full Professor of Philosophy of Nature and of Sciences
At the Faculty of Philosophy of the Pontifical Lateran University

E-mail: basti@pul.it
Address: Pontifical Lateran University – Piazza S. Giovanni Laterano, 4 – 00184 Rome
Phone: +39 06 69895656
Cell.: +39 339 5760314
Web: www.irafs.org

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Husserl's *Crisis* at the root of all his transcendental philosophy

- What we want to deepen here are **the parallelisms with the phenomenology**. Indeed, **all the fundamental topics** involved the "paradigm-shift" illustrated in the First Part of our course are the same that are at the basis of **Husserl's deep analysis of the "Crisis" of the European, and hence of the Modern notions of logical, mathematical and natural sciences**.

- The "objectivist" view of science, with the "formalist" approach to the foundations of logic and mathematics is, according to him, at the basis of the contemporary crisis of the European humanism.

- Despite this criticism is the explicit object of Husserl's *Krisis* firstly published in 1936 (Husserl, 1976), nevertheless, as it is evident from the reference to the *transzendentale Phenomenologie* in the title, **such a criticism constitutes the true root of all his phenomenological philosophy**. That is, since the very beginning of Husserl's career as a mathematician, and then as a philosopher of mathematics

The relationship between the *Crisis* and the rest of his production

- Particularly, this criticism is about what is the main concern of **any foundational theory.** That is, **the justification of the notion of *truth* in logic and in ontology,** both **in the *general*, and in the *regional* logics and ontologies** of the different mathematical and natural sciences.
- Effectively, **there is apparently an evolution** from the most theoretical researches of Husserl about the foundation of truth of the *Logische Untersuchungen* (Husserl, 1913/21) and the *Krisis.*
  - In the former, truth is based on the intrinsic relationship between “formal logic” and “formal ontology”, as two inseparable components of the theoretical idea of “pure logic”.
  - In the *Krisis,* the reflections about truth depend on a *pragmatic approach* to ontology based on the *Lebenswelt*.

The ontic foundation of truth in the self-evidences of the *Lebenswelt*

- The main thesis of the *Krisis* is indeed that, despite its constant success, the crisis of the Modern (now, no longer only "European") science consists "**in the loss of its meaning for life**" (Husserl, 1970b, p. 5).
- On the contrary, through the "transcendental method of phenomenology", it is possible, according to him, going back to the "primal" role of the **"self-evidences of the life-world" (*Lebenswelt*) for the *ontic foundation*** of the mathematical and natural-scientific theories.
  - From objective-logical self-evidence (mathematical "insight", natural-scientific, positive-scientific "insight" as it is being accomplished by the inquiring and grounding mathematician, etc.), the path leads back, here, to **the primal self-evidence in which the life-world is ever pre-given**. (…) As it is the case in conceiving of geometrical straight lines on the basis of the life-world self-evidence of straight table-edges and the like (Husserl, 1970b, pp. 128-129).

The primacy of the subjective praxis of the *Lebenswelt*

- The Husserlian **pragmatic approach to ontology** in terms of “forms and contents” of the life-world experiences has its proper, fundamental role in freeing ourselves from “the constant misconstructions which mislead us all, because of the scholastic dominance of objective-scientific way of thinking”.
- On the contrary, immediately after, Husserl emphasizes **the predominance of the *subjective praxis*** over the “objectivism” of modern science in the following statement defining
  - the objective sciences as subjective constructs – those of a particular praxis, namely, the theoretical-logical one [of scientists], which itself belongs to the full concreteness of the life-world.

Sciences are expressions of the *Lebenswelt* praxis of scientists

- In this way, "**the predicative theories of sciences",** namely,
  - the system of statements meant logically as "proposition in themselves" **is rooted, grounded in the life-world**, in the original self-evidences belonging to it. Thanks to this rootedness, objective science **has a constant reference of meaning to the world in which we always live**, even as scientists, and also in the total community of scientists – a reference, that is, to the general life-world (Husserl, 1970b, p. 130).
- Of course, the scientific theories **are not**
  - **Things in the life-world like stones, houses or trees**. They are logical wholes and logical parts made up of ultimate logical elements. To speak with Bolzano, **they are "representation-in-themselves" ["*Vorstellungen an sich*"],** "propositions in themselves", ideal unities of signification whose logical ideality is determined by their *telos*, "truth in itself". But this or any other ideality does not change in the least the fact that **these are human formations,** essentially related to human actualities and potentialities, and thus belong to this concrete unity of the life-world, whose concreteness thus **extends farther than that of "things"** (Husserl, 1970b, p. 130)

The distance between the *Crisis* and the *Logical Investigations* is only apparent

- This reference to the problem of truth makes evident that the distance between the *Logical Investigations* and the *Crisis* **is more temporal than theoretical**, more apparent, than substantial.
- Even though, generally, **the mathematicians and the logicians** – before all one of the greater logician of the XX cent., Kurt Gödel, who recommended to his colleagues the reading, particularly, of the *Sixth Logical Investigation* – can **feel themselves more comfortable with the language and the concepts used in the *Investigations*.**
- The language and the concepts of the *Crisis*, have, indeed, a **more "sapiential" than "scientific" flavor*.***
- In fact the aim of the *Investigations* is **epistemological** while the aim of the *Crisis* is **anthropological.**

Formal logic and formal ontology in the *Investigations*

- Anyway, also in the *Logical Investigations* the issue of the consciousness content, i.e., the "object as such", is central for dealing with the logical (semantic) notion of "meaning", and hence of "truth" in logic.
- Effectively, in the *Third Logical Investigation* Husserl defends **the *ontological* foundation of the *logical* truths**, as far as knowledge can access **"beings/things" only as "objects-for-a-subject"**. Particularly in the "Introduction" to this *Investigation,* Husserl refers to **the notion of *formal ontology* as the "*pure (a priori) theory of objects as such".***
- Therefore **formal ontology** is
  - the systematic place (…) in which we deal with **ideas pertinent to the *category of object,*** ideas such as Whole and Part, Subject and Quality, Individual and Species, Genus and Species, Relation and Collection, Unity, Number, Series, Ordinal Number, Magnitude etc., as well as **the *a priori* truths which relate to these** (Husserl, 1970a, p. 3).

From calculus to the *Logic of content (Inhaltlogik)*

- Effectively, this reference to ontology as “a pure (a priori) theory of objects as such”, because of **his criticism to the *formalism* typical of the modern “reshaping” of mathematics by the *axiomatic method*** (Husserl, 1970b, pp. 21-23) constitutes the main motivation of Husserl’s phenomenological method, since the very beginning of his career.

- Namely, since his PhD work (1891) in mathematics, concerning the “calculus of variations” – i.e., an essential tool of the mathematical analysis related to the “perturbation method” introduced by Laplace for extending the Newtonian mechanics to the “many body mechanics”, **Husserl introduced the notion of *Inhaltlogik.*** That is, the “logic of contents”, or “intensional logic” for correcting the “formalistic”, “purely syntactic” nature of the calculus (Husserl, 1891).

Formalism and the problem of reference in formal semantics

- In fact, for a large part of the logic of the XX cent., “the reference to object” as an intrinsic construct of an intentional “transcendental subject”, seems to be an ***unavoidable ingredient of the mathematical ontology***, given the systematic impossibility of the standard “set-theoretic semantics” to solve the problem of *reference* – Quine spoke about the unavoidable “opacity of reference” in formal languages, modal languages included (Quine, 1980, p. 139ff.).
- This problem indeed is intrinsically connected to the other one **of the justification of the same *truth* as “correspondence to object” in formal semantics**, after the fundamental “Tarski Theorem” of 1929 (Tarski, 1935), and, finally, after Gödel’s “incompleteness theorems” – essentially the second one (Gödel, 1931) – that closed definitely the issue.

Modern mathematics and its implicit Platonic ontology

- In other terms, **logical truth can be only supposed never demonstrated** in formal semantics, so that one must search its foundation elsewhere.
- This systematic impossibility justifies the persistent interest of some logicians and mathematicians, starting from Gödel himself, to the transcendental foundation of the logical meaning of the mathematical objects, and ultimately of the same logical truth **via the phenomenological method**, as far as the standard set-theoretic semantics follows a *Platonic ontology* of logic and mathematics (i.e., the *abstract existence* of set elements as "preceding" any morphism (oriented relation or "arrow") having them as domain-codomain.

  Anyway, it is well-known the strict relationship existing between the modern Galilean science and the modern mathematics, on the one hand, and the Platonism, on the other one…

  The intrinsic dependence of the standard set theory on a Platonic ontology of mathematics, consists indeed in supposing that *the elements of sets exist in the Universal Collection "V", independently from any relation (e.g., a function) defined on them* – where *V* stays for *Veritas*, i.e., "truth". *V,* therefore, defines the "universe" of the objects with which a given axiomatic system is dealing with, i.e., the abstract objects "formally existing" in the system.

The core of the relation: self-evidence as self-identity

- Now, “necessary and sufficient condition” for the memebership to *V* is that **all its members satisfy *a self-identity relation*,** a condition stated for the first time, in the history of Western thought, in Plato’s Dialogue *Parmenides,* that is, the dialogue in which Plato’s metaphysics reaches its most consistent development.
- The core of the modern transcendentalism, consists therefore, from Descartes and Kant on, Husserl included, *in identifying “self-identity” with “self-evidence”*, so to justify in the usual logical jargon, the denotation of the members of *V* as “objects” (as-to-a-subject) constituting the “universe” of a given axiomatic system. “*V* is, by definition, the class of all those elements which are self-identical; i.e., since everything is self-identical, *V* is simply the class of all elements” (Quine, 1983, p. 144).

Platonic ontology and the standard (ZF) set theory

- Here there is a key-point for understanding the paradigm-shift in foundational issues introduced by CT. In CT, indeed, any object *x* satisfies an identity relation (morphism) Id_x, that is, a reflexive morphism. **In this sense *algebra* and not some *transcendental subject* is before logic, and *semiotics* and not *knowledge* is before meaning.**

- Therefore, if we compare the definition of the *standard* notion of set just at the beginning of Fraenkel's *Abstract Set Theory* book – we recall here that A. Fraenkel is co-author with E. Zermelo of the most diffused and used axiomatic set-theory, the "Zermelo-Fraenkel set theory (ZF)". For Fraenkel, indeed, both the "intuition of objects", and "collecting objects into an aggregate" **are "intellectual acts"** (Fraenkel, 1953, p. 6).

- Let us compare the following two passages, respectively **of Husserl and of Fraenkel**, for understanding this key-point of the whole question of the modern transcendentalism in the foundations of logic.

Husserl *vs.* Fraenkel

- **Husserl:**
- Seen in their mutual interrelations, contents presented together on any occasion fall into two main classes: independent and non-independent contents. We have independent contents wherever the elements of a presentational complex (complex of contents) by their very nature *permit their separated presentation*; we have dependent contents [i.e., “wholes”] wherever this is not the case (Husserl, 1970a, p. 6).
- **Fraenkel:**
- *Definition of set.* A set or aggregate is a collection of definite, distinct objects of our intuition or of our intellect, to be conceived as a whole (unity) (Fraenkel, 1953, p. 6).

Husserl’s apodictic value of self-evidences

- Where **the two approaches diverge** is about the different logical value to be attributed to such “objects” of a logical system, and the relative “axioms” that, as far as self-evident, **are *apodictic* or “absolute” for the modern transcendentalism** – from Descartes to Husserl included, passing through Kant, despite the deep differences among them –, while **they are only *hypothetical* for all the contemporary mathematical logic.**
- For Husserl, indeed, given that we are faced here with **the *abstract thought* typical of the mathematical/scientific praxis**, as far as related “with the pregnant use of ‘think’”,
  - there is a reference not to a subjective necessity, i.e., to the subjective incapacity-to-represent-things-otherwise, but to the objectively-ideal necessity of an inability-to-be-otherwise (…) such as to be given in our consciousness of ***apodictic self-evidence*** (Husserl, 1970a, pp. 12-13).

The *Ur-praxis* of the *Lebenswelt*

- In this sense, the difference with the *Crisis* is only in emphasizing that because the “ideal self-evidences of abstract thought” are the result of a particular *praxis* underlying these evidences – i.e., **the *scientific praxis* of the single scientist, and/or of the scientific community**–, there exist the most fundamental self-evidences of the *Lebenswelt,* as a sort of “Ur-praxis” of the whole human community.
- In other terms, in the *Logical Investigations,* all the different objects of the different *material ontologies* suppose **their ultimate “objectness” (*Gegenständlickeit*),** as the *categorical,* ultimate structure of any object to which an intentional act is directed and that is studied by the *formal ontology.*
- In the same way, in the *Crisis,* the “living experiences” (*Erlebnisse*) of the different “things” emerge onto **the common “horizon” of the “perceptual field”** constituting the ultimate “ontic” component of the *Lebenswelt*.

The deep link between the formal ontologies of *Investigations* and *Crisis*

- The link between the two approaches lies, indeed, in the fact that also in the *Logical Investigations* "**being**" – both **in the *attributive* sense** of attributing existence to a thing ("that white sheet of paper *exists*"), and **in the *copulative* sense** of expressing the inherence of a property to a thing ("the sheet of paper *is* white") – is in continuity with the sense perception, even though this is not the "percept" of some outer or inner sense, because **it constitutes the *ultimate fulfilment* of any perceptual presentation of the object to a consciousness**.
- In such an ultimate fulfilment consists also the **Husserlian interpretation of Aquinas' notion of "truth" as *adaequatio intellectus et rei,*** and of **its *self-evident character*:**
  - Where a presentative intention has achieved its last fulfilment, the genuine *adaequatio rei et intellectus* has been brought about. *The object is actually 'present' or 'given' and present as just what we have intended it* (Husserl, *Logical Investigations. Volume 2* 260-261)

Being of essence as being of the logical identity *subject-predicate*

- However, the “being” and the “evidence” relative to such an “ultimate fulfilment” cannot be the *copula* of a categorical judgment relative to the adequate (true) predication of some quality as to a given subject – that as such is expressing “a partial coincidence” between a subject and a predicate –, but **the “being” expressing the *identity* between subject and predicate** typical of any **definition of essence** (e.g., “humans are rational animals”).
  - [Such a] concept of truth concerns the *ideal relationship* which obtains in the unity of coincidence which we defined as self-evidence (…) *the Idea of absolute adequation as such.* (…) We also experience in self-evidence, from the side of the act which furnishes ‘fullness’, *the object given in the manner of the object meant*: so given, the object is fullness itself. This object can also be called being, truth, the ‘truth’ insofar as it is not experienced as in the merely adequate percept, but as ideal fullness for an intention, as that which makes the intention true (or as the ideal fullness for the intention’s *specific* epistemic essence) (Husserl, 1970a, p. 264).