

The role of symbols in logic and mathematics for phenomenology: historic and systematic approaches

One of the central topics of Husserl's phenomenological research since the publication of the *Logische Untersuchungen* has been the status and the possibility of a symbolic knowledge, as it is for instance exemplified by logical and mathematical sciences. This enduring interest throughout Husserl's career is due to the fact that formal sciences, being "empty of content", seems to provide apodictic knowledge by challenging the requirement to "go back to the things themselves" to gain an intuitive justification for their judgments. It becomes then necessary to analyze, on the one hand, the peculiar way of givenness of ideal objects and, on the other, the nature of signs and of their different modality of meaning expressions within the mathematical practice.

Husserl's perspective offers many insights: historically, it elicits to bridge his reflection to other philosophical traditions of his time that have likewise insisted on the semiotic character of conceptual thought and of mathematics in particular; theoretically, it allows to reassess the goals of phenomenology in relation to mathematical practice.

Regarding the first aspect, although Husserl's viewpoint can be placed within the general framework of the renovated philosophical interest for the principles of mathematics between the late 19th and early 20th centuries, his research maintains an originality that distances it from other approaches. In fact, Husserl's defense of the objectivity of *a priori* sciences is not only based on the technical procedure of axiomatization, as it traces back to the pre-formal sphere of experience. On the epistemological layer, then, Husserl's appraisal of signs is closer to schools of thought such as Marburg's neo-Kantism or Peirce's pragmatism, rather than to the logicism of Frege, Russell or Hilbert.

From the systematic point of view, the questions raised by the epistemology of formal sciences sheds light on phenomenology in general, and on the relationship between evidence and symbols. This has great relevance for the ongoing discussions concerning the traditional problems of the philosophy of mathematics since Husserl focuses on mathematical activity rather than on fixed metaphysical positions to reveal the essence of the mathematical. The understanding of the functioning of symbols, be they geometrical diagrams or algebraic letters, plays a main role in this perspective.

In this conference we aim to provide an overview of different accounts of the significance and function of signs in the constitution of mathematical objectivity. The aim is to address the problem both historically, by comparing phenomenology to other philosophical traditions, and theoretically, by understanding how the phenomenological method can provide a clarification of the complexed phenomenon of formal sciences.

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