JEAN CAVAILLÈS AND THE VIENNA CIRCLE

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I. Introduction
We propose "mathematical philosophy" as a new way for the philosophy of mathematics. Its sources are manifold: stoicism, Pascal, and more recently Cavaillès and Lautman. The purpose of this paper is to show the relation between Cavaillès and Lautman's works and Wittgenstein's Tractatus in the common ground of their criticism of the Vienna Circle.

The main sources will be the simultaneous works of Cavaillès and Lautman, "L'école de Vienne au Congrès de Prague" and "Le Congrès International de Philosophie des Sciences", published in the Revue de Métaphysique et de Morale (T. XLII, no. 1, 1935 and T. XLIII, no. 1, 1936). They are both related to the "petit Congrès" that the Vienna Circle organised immediately before the VIII International Congrès of Philosophy.

II. Cavaillès' Wittgenstein
Cavaillès started out his work by explaining Wittgenstein's Tractatus since it "played a determinant role in the birth" of the Vienna Circle.

His view of Wittgenstein claims that there are three essential points in the Tractatus:
1. Language is the image of the world,
2. Purely logical propositions have no content,
3. There are no propositions about propositions.

Following Cavaillès, the first thesis amounts to the following:
1.1) The real is something given in-itself (en-soi) and is independent of knowledge, which can only be its description.
1.2) The universe (réel) can be represented by one of its parts (discourse). This peculiar feature makes it possible to reproduce, in an image, the essential relations of the original. That is, there are
invariant relations throughout the process of representation: these are logical articulations.

1.3) The world is a system of actual (effective) relations (Was der Fall ist) which are contingent actualizations of possible relations. The permanent element in both (the original and the image) is the object which has, in its relation to the situations in which it is involved, the same relation that words have with the phrases in which they appear. That is, objects contain the virtual possibility of participating in the possible situations (2.014).¹

1.4) The “space” in which these relations exist is “logical space”; “logical space” does not assume the existence of the actual world but only that the world is (5.552).

1.5) Thought is projected upon language. This yields a one-to-one correspondence between the real universe and the universe of discourse (5.6). Because of this fact, we can establish common limits for the world and our language.

1.6) It is as absurd to think about a world that would escape logic as it would be to speak of something that is not in the world or about the limits of the world.

1.7) There is a difference between the sense of a proposition and its truth-value. Sense lies in the logical space of possibilities while truth lies in the logical space of the actual. The truth of a proposition has to be, thus, verified experimentally: there is no other source for truth (sense would demand an actualization).

2. The second thesis implies that:

2.1) there are no logical constants.

2.2) the theory of truth-tables indicates the new role of philosophy. That is, by proving logic’s “radical sterility”, philosophy cannot aspire to the rank of a doctrine (4.112); its only role is to clarify propositions (loc. cit.). Philosophy can only aspire to oppose the emergence of pseudo-problems which stem from the fact that we do not understand the logic of our language (4.003). Its results can never be formulated as propositions.

3. Propositions of philosophy (those that would propose rules for the architecture of propositions) are not propositions: logic, being what is common to the image and the original, cannot be represented.

1. Unless otherwise stated, number in parentheses are referred to Wittgenstein’s Tractatus.