

## Structure-Constructivism in the Philosophy of Mathematics

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**Abstract :** This study argues that constructivism and structuralism, which have been the two important schools of mathematical philosophy since the mid-19th century, can and should be synthesized into structure-constructivism. In fact, the philosophy of mathematics is divided into more than ten schools depending on the point of view. However, the biggest trend is Platonism which claims that mathematical objects are "abstract entities" that exists independently of the human mind and material objects. Its opposite is constructivism. According to the latter, mathematical objects are products of the construction of the human mind. However, whether the basis of the construction is a logical device, a symbolic system, or an empirical perception, it is subdivided into logicism, formalism, and intuitionism. However, these three schools themselves are further subdivided into various variants, and among them, structuralism, which emerged in the mid-20th century, is receiving the most attention. On the other hand, structuralism which emphasizes structure instead of individual objects, is divided into non-eliminative structuralism, which supports the a priori of structure, and non-eliminative structuralism, which rejects any abstract entity. In this context, it is believed that the structure itself is not an a priori entity but a result of the construction of the cognitive subject and that no object has ever been given to us in its full meaning from the outset. In other words, concepts are progressively structured through a dialectical cycle between sensory perception, imagination (abstraction), concepts, judgments, and reasoning. Symbols are needed for formal operation. However, without concrete manipulation, the formal operation cannot have any meaning. However, when formal structurization is achieved, the reality (object) itself is also newly structured. This is the "structure-constructivism".

**Keywords :** philosophy of mathematics, platonism, logicism, formalism, constructivism, structuralism, structure-constructivism

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