Ontology of Logic

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Abstract

According to the formalist doctrine mathematical objects have no meanings; we have symbols and rules governing how these symbols can be combined. That's all.

This paper goes further by formulating a more radical thesis: The signs of a formal system of mathematics should be considered as physical objects, and the formal operations as physical processes. The rules of the formal operations are (or can be, in principle) expressed in terms of the laws of physics, governing these processes. In accordance with the physicalist understanding of mind, this is true even if the operations in question are executed in head. A truth obtained through (mathematical) reasoning is, therefore, an observed outcome of a neuro-physiological (or other physical) experiment. Consequently, deduction is nothing but a particular case of induction; the certainty available in inductive generalization is the best of all possible certainties.