Summary: The debate on structuralism in the philosophy of mathematics has brought into focus a question about the status of metamathematics. It has been raised by Shapiro in "Categories, structures, and the Frege-Hilbert controversy: the status of meta-mathematics" [Philos. Math. (3) 13, No. 1, 61–77 (2005; Zbl 1082.18001); reprinted in: S. Lindström et al. (eds.), Logicism, intuitionism, and formalism. What has become of them? Originated from the conference and the symposium on constructive mathematics, Uppsala, Sweden, August 2004. Dordrecht: Springer. Synthese Library 341, 435–448 (2009; Zbl 1165.03006)], where he compares the ongoing discussion on structuralism in category theory to the Frege-Hilbert controversy on axiomatic systems. Shapiro outlines an answer according to which metamathematics is understood in structural terms and one according to which it is not. He finds both options viable and does not seem to prefer one over the other. The present paper reconsiders the nature of the formulae and symbols metamathematics is about and finds that, contrary to Charles Parsons' influential view, metamathematical objects are not "quasi-concrete". It is argued that, consequently, structuralists should extend their account of mathematics to metamathematics.

MSC:
03A05 Philosophical and critical aspects of logic and foundations
00A30 Philosophy of mathematics

Keywords:
mathematical structuralism; metamathematics; quasi-concrete objects; criteria of identity

Full Text: DOI

References:


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.