

ZFC IS INCONSISTENT

A condition by Paul of Venice (1369-1429) solves Russell's paradox, blocks Cantor's diagonal argument, and provides a challenge to ZFC

Thomas Colignatus

thomascool.eu

November 14 2014 – July 28 2015

Abstract

Paul of Venice (1369-1429) provides a consistency condition that resolves Russell's Paradox in naive set theory without using a theory of types. It allows a set of all sets. It also blocks the (diagonal) general proof of Cantor's Theorem (in Russell's form, for the power set). The Zermelo-Fraenkel-Axiom-of-Choice (ZFC) axioms for set theory appear to be inconsistent. They are still too lax on the notion of a well-defined set. The transfinities of ZFC may be a mirage, and a consequence of still imperfect axiomatics in ZFC for the foundations of set theory.

For amendment of ZFC two alternatives are mentioned: ZFC-PV (amendment of de Axiom of Separation) or BST (Basic Set Theory).

Keywords: Paul of Venice • Russell's Paradox • Cantor's Theorem • ZFC • naive set theory • well-defined set • set of all sets • diagonal argument • transfinities

MSC2010: 03E30 Axiomatics of classical set theory and its fragments

03E70 Nonclassical and second-order set theories

97E60 Mathematics education: Sets, relations, set theory

Introduction & Conclusion

This paper has been edited and included in Colignatus (2015).

The original results of the paper of 2015-06-27 still stand, albeit that one might argue that an edit always affects what the full results properly are. For the latter reason it is useful to state explicitly that this paper & title has become a legacy version, that is superseded by Colignatus (2015).

Rererences

Colignatus, Th. (2015), *Foundations of Mathematics. A Neoclassical Approach to Infinity*", published by mijnbestseller.nl, <http://thomascool.eu/Papers/FMNAI/Index.html>

THOMAS COLIGNATUS

Thomas Colignatus is the name in science of Thomas Cool, econometrician (Groningen 1982) and teacher of mathematics (Leiden 2008).

[cool a t dataweb.nl](http://cool.a.t.dataweb.nl)

thomascool.eu