On What Exists Mathematically: Indispensability without Platonism

Newstead, Anne and Franklin, James (2009) On What Exists Mathematically: Indispensability without Platonism. In *[2009] Metaphysics of Science (Melbourne, July 2-5, 2009)*.

Full text available as:
[Microsoft Word (MS Word 97-03 doc)](#) - Requires a viewer, such as [Microsoft Word Viewer](#)

Abstract

According to Quine's indispensability argument, we ought to believe in just those mathematical entities that we quantify over in our best scientific theories. Quine's criterion of ontological commitment is part of the standard indispensability argument. However, we suggest that a new indispensability argument can be run using Armstrong's criterion of ontological commitment rather than Quine's. According to Armstrong's criterion, 'to be is to be a truthmaker (or part of one)'. We supplement this criterion with our own brand of metaphysics, 'Aristotelian realism', in order to identify the truthmakers of mathematics. We consider in particular as a case study the indispensability to physics of real analysis (the theory of the real numbers). We conclude that it is possible to run an indispensability argument without Quinean baggage.

Keywords:	indispensability; ontological commitment; Quine; Armstrong; Aristotelian realism; truthmaker
Subjects:	General Issues: Realism/Anti-realism
Conferences and Volumes:	[2009] Metaphysics of Science (Melbourne, July 2-5, 2009)
ID Code:	4757
Deposited By:	Newstead, Anne
Deposited On:	14 July 2009