

# Cambridge Elements

Elements in the Philosophy of Mathematics

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## INNOVATION AND CERTAINTY

Mark Wilson

*University of Pittsburgh*



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## Innovation and Certainty

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Mark Wilson  
*University of Pittsburgh*

**Author for correspondence:** Mark Wilson, mawilson@pitt.edu

**Abstract:** In *The Vanity of Dogmatizing* (Glanvill 1661, p. 209), the generally skeptical Joseph Glanvill conceded: “And for Mathematical Sciences, he that doubts their certainty, hath need of a dose of Hellebore.” But is this familiar opinion truly defensible? Beginning in the nineteenth century, mathematicians began to reposition old problems within revised settings in which formerly accepted truths become overturned. How can mathematics retain its status as a repository of necessary truth in the light of these revisions? This monograph provides a historical sketch of how these challenges have been philosophically addressed.

**Keywords:** innovation, certainty, Dedekind, De Morgan, setting

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