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INTRODUCING THE PHILOSOPHY OF MATHEMATICAL PRACTICE

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Introducing the Philosophy of Mathematical Practice

Elements in the Philosophy of Mathematics

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Abstract: This Element introduces a young field, the ‘philosophy of mathematical practice’. It offers a general characterisation of the approach to the philosophy of mathematics that takes mathematical practice seriously and contrasts it with ‘mathematical philosophy’. The latter is traced back to Bertrand Russell and the orientation referred to as ‘scientific philosophy’ that was active between 1850 and 1930. To give a better sense of the field, the Element further includes two examples of topics studied: mathematical structuralism and visual thinking in mathematics. These are in part presented from a methodological point of view, focussing on mathematics as an activity and questions related to how mathematics develops. In addition, the Element contains several examples from mathematics, both historical and contemporary, to illustrate and support the philosophical points.

Keywords: philosophy of mathematical practice, mathematical philosophy, mathematical structuralism, visual thinking in mathematics, diagrams

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