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Font, Viceng; Godino, Juan D.; Gallardo, Jesús

The emergence of objects from mathematical practices.

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Summary: The nature of mathematical objects, their various types, the way in which they are formed, and how they participate in mathematical activity are all questions of interest for philosophy and mathematics education. Teaching in schools is usually based, implicitly or explicitly, on a descriptive/realist view of mathematics, an approach which is not free from potential conflicts. After analysing why this view is so often taken and pointing out the problems raised by realism in mathematics this paper discusses a number of philosophical alternatives in relation to the nature of mathematical objects. Having briefly described the educational and philosophical problem regarding the origin and nature of these objects we then present the main characteristics of a pragmatic and anthropological semiotic approach to them, one which may serve as the outline of a philosophy of mathematics developed from the point of view of mathematics education. This approach is able to explain from a non-realist position how mathematical objects emerge from mathematical practices.

Classification: D20

Keywords: classroom discourse; conventional versus realist mathematics; epistemology; mathematical objects; onto-semiotics

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