

Penelope Maddy, *Realism in mathematics*, Oxford, Clarendon Press, 1990.

Reviewed by

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This book, devoted to the defense of a kind of mathematical realism called "set theoretic realism," is to be highly recommended. Realism concerning a given discipline is, as Professor Maddy defines it, "the contention that its subject matter exists objectively, that various efforts to reinterpret its claims should be resisted, and that most of its well-supported hypotheses are at least approximately true" (p. 177).

After the publication of Benacerraf's two well-known papers, "What Numbers Could Not Be" (1965) and "Mathematical Truth" (1973), every mathematical realist was forced to respond to his objections to the view that numbers are independent objects. In "Mathematical Truth," Benacerraf highlights the epistemological problem that every realist has to face, to wit, the connection between knowers and objects known, by which we may determine what objects exist, and what their properties and relationships are. Traditional realists, from Plato to Gödel, have postulated a peculiar epistemic faculty, sometimes called "intuition," which provides the desired contact. Benacerraf's argument in "What numbers could not be" poses the problem of how to decide, among the different possibilities, what objects numbers really are. He focuses on the set theoretical proposals of von Neumann and Zermelo: if numbers were to be sets, what reasons might we have to decide between, for example, Zermelo's numbers and von Neumann's ordinals? Benacerraf answers that numbers are not objects at all but suggests that mathematics is about some kind of structure. Professor Maddy is aware that this argument, if it works – and she thinks it does, can be extended and used against the thesis that reals are sets. If both Cantor and Dedekind offer suitable accounts of real numbers, how can we choose between them?

Professor Maddy looks at Benacerraf's criticisms in the face and so Chapter Two of her book deals with Benacerraf's epistemological challenge; and in Chapter Three she addresses his arguments against the identi-