Naturalism in Mathematics
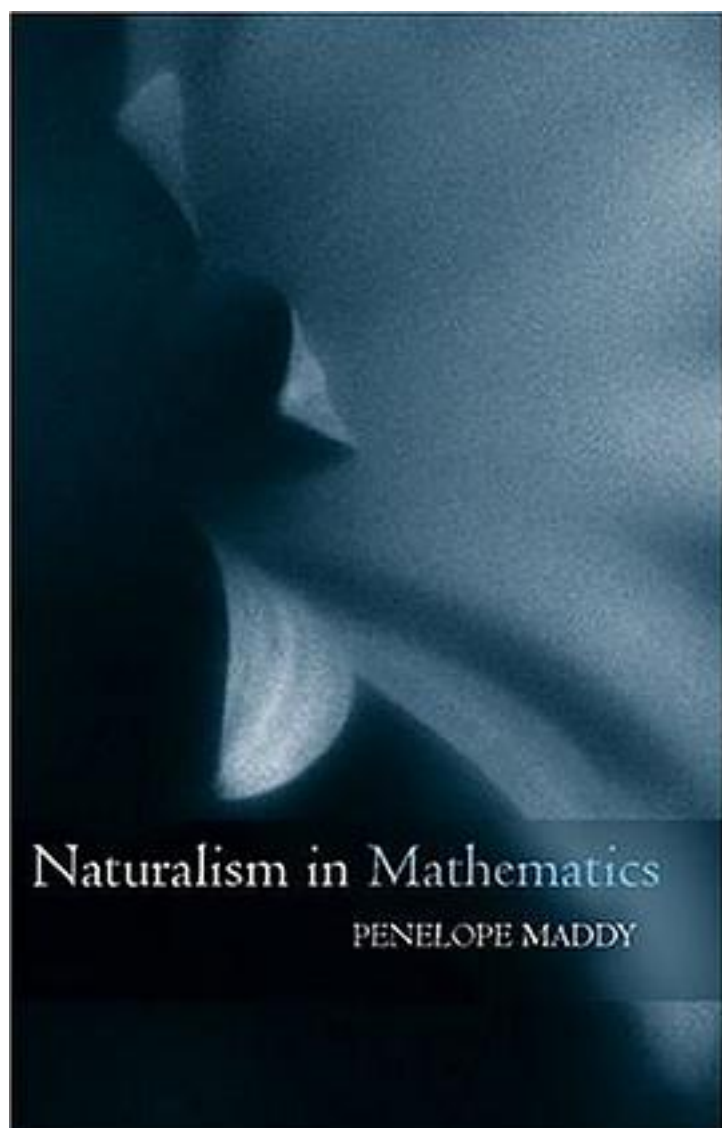
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Our much-valued mathematical knowledge rests on two supports: the logic of proof and the axioms from which those proofs begin. Naturalism in Mathematics investigates the status of the latter, the fundamental assumptions of mathematics. These were once held to be self-evident, but progress in work on the foundations of mathematics, especially in set theory, has rendered that comforting notion obsolete. Given that candidates for axiomatic status cannot be proved, what sorts of considerations can be offered for or against them? That is the central question addressed in this book. One answer is that mathematics aims to describe an objective world of mathematical objects, and that axiom candidates should be judged by their truth or falsity in that world. This promising view--realism--is assessed and finally rejected in favour of another-- naturalism--which attends less to metaphysical considerations of objective truth and falsity, and more to practical considerations drawn from within mathematics itself. Penelope Maddy defines this naturalism, explains the motivation for it, and shows how it can be helpfully applied in the assessment of candidates for axiomatic status in set theory. Maddy's clear, original treatment of this fundamental issue is informed by current work in both philosophy and mathematics, and will be accessible and enlightening to readers from both disciplines.

作者介绍:

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