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PLATO WAS *NOT* A MATHEMATICAL PLATONIST

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Plato Was *Not* a Mathematical Platonist

Philosophy of Mathematics

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Abstract: This Element argues that Plato was *not* a mathematical Platonist. It shows that Plato keeps a clear distinction between mathematical and metaphysical realism, and the knife he uses to slice the difference is method. The philosopher's dialectical method requires that we tether the truth of hypotheses to existing metaphysical objects. The mathematician's hypothetical method, by contrast, takes hypotheses *as if* they were first principles, so no metaphysical account of their truth is needed. Thus, we come to Plato's methodological as-if realism: In mathematics, we treat our hypotheses *as if* they were first principles, and, consequently, our objects *as if* they existed, and we do this for the purpose of solving problems. Taking the road suggested by Plato's *Republic*, the author shows that some methodological commitments to mathematical objects are made in light of mathematical practice; some are made in light of foundational considerations; and some are made in light of mathematical applicability.

Keywords: Plato, ancient philosophy of mathematics, mathematical realism, mathematical platonism, as-ifism

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