

Fresh Breezes in the Philosophy of Mathematics

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To test a philosophy of mathematics, ask it questions:

- (1) What makes mathematics different?
- (2) What is mathematics about?
- (3) Why does mathematics achieve near-universal consensus?
- (4) How do we acquire knowledge of mathematics, apart from proof?
- (5) Why are mathematical results independent of time, place, race, nationality and gender, inspite of the social nature of mathematics?
- (6) Does the infinite exist? If so, how?
- (7) Why does pure mathematics so often become useful?

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In conclusion, I want to destroy one of the most popular arrows opponents like to shoot at mathematical humanism.

$2 + 2 = 4$, they say, everywhere and always. In fact, $2 + 2 = 4$ before there were human societies, or even human beings. [When 2 brontosauruses went to the water hole and met two other brontosauruses, there were four brontosauruses at the water hole.](#) The truths of mathematics are universal, universal, independent not only of individual consciousness but of social consciousness.

This is Platonism, the view that Wittgenstein attacked so fiercely, and the view, let's face it, that most mathematicians accept.

How can a humanist answer?

First of all, "two" play two roles. It's an adjective and it's a noun. When you say "two brontosauruses," "two" is an adjective. "Two brontosauruses plus two brontosauruses equals four brontosauruses" is a statement about brontosauruses, not about numbers. Even if you say "Two discrete, reasonably permanent, non-interacting objects collected together with two others of the same ilk makes four such objects," you are talking about about properties of discrete, reasonably permanent non-interacting objects. **That's a statement in elementary physics.**

593 CONCL⁰: MATHS ∈ SCIENCES EMPIRIQUES

Study of the lawful, predictable parts of the physical world has a name. That name is "physics." [Study of the lawful, predictable parts of the social-conceptual world has a name. That name is "mathematics."](#)