Thoughts on
"Philosophy of Mathematical Practice"

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January 2020

Philosophy of Mathematical Practice

The phrase "Philosophy of Mathematical Practice" is used to describe two different things:

- A branch of philosophy.
- An interdisciplinary study of mathematical practice.

These are both good things, but in both cases the title is problematic.

Philosophy of Mathematical Practice

The phrase is often used in contrast with "philosophy of mathematics" or "*traditional* philosophy of mathematics."

Problems:

- It suggests that philosophy of mathematics proper is not about mathematical practice.

- It renounces more than two thousand years of tradition. Plato, Aristotle, Descartes, Leibniz, Berkeley, Kant, Hilbert, Bolzano, Frege, Peirce, Russell, Carnap, and Quine all cared deeply about the mathematics of their time.

- It is too easy to dismiss as "not philosophy."

Solution: call it "philosophy of mathematics."

Philosophy of Mathematical Practice

The phrase is sometimes used to refer to an interdisciplinary study that includes mathematics, computer science, cognitive science, experimental psychology, educational research, history of mathematics, history of science, sociology, linguistics, and more.

Problems:

- Each field has distinct, rigorous, standards and expectations.
- If something doesn't meet the rigorous standards of field X and doesn't meet the rigorous standards of philosophy, it is neither X nor philosophy.
- Calling it "philosophy of mathematical practice" doesn't help.

Solution: don't use "philosophy of mathematical practice" to describe X. A broad interest in mathematical practice is what unites the perspectives.

Philosophy of Mathematical Practice

Cross disciplinary interactions are important!

- Philosophy can help clarify ways of thinking about mathematics, and raise fundamental questions for the sciences and other scholarly domains.
- Scientific work and other scholarly work raise philosophical questions and call for philosophical reflection.
- Scientific work should be guided by philosophical understanding.
- Philosophical work should be guided by scientific understanding.

But we have to maintain the standards of each discipline, and make it clear that we are doing so.

Philosophy of Mathematical Practice

Summary:

- If you are interested in mathematical practice and adopting a philosophical approach, you are doing philosophy of mathematics. (The narrow late-twentieth-century program is running out of steam. It is time to make phil math great again.)

- If you are doing historical or scientific research with an eye towards understanding what it means to do mathematics, say so.

- Interaction is important: overly narrow fields of research become siloed, dull, and useless.

- Opponents want to see "philosophy of mathematical practice" as fuzzy, speculative, undisciplined nonsense. Don't let them.