

A mathematical manifesto

I.

Three people register for a hotel room; the desk clerk charges them \$30 . The manager returns and says this was an overcharge, instructing the clerk to return \$5 . The clerk takes five \$1 bills, but pockets \$2 as a tip and returns only \$1 to each guest. Of the original \$30 payment, each guest actually paid \$9 , and \$2 went to the attendant. What happened to the “missing” dollar?

II.

Is math real? Is it meaningful? Is it valid?

Few professional mathematicians, I imagine, worry about the answers to these questions. There are a few, though —and more than a few philosophers— who do. But compare the above questions to these:

Is music real? Is it meaningful? Is it valid?

We run into a type error trying to ask these sorts of questions about music; music is an exercise —one of many— in human aesthetics. What about math? While few mathematicians doubt the relevance of aesthetics to mathematics, yet fewer seem willing to cut the bonds completely between math and “real-world” phenomena, particularly the phenomenon of truth.

But how can we, being only human, measure how accurately our mathematics reflects nature, or predict how accurately mathematics *can* reflect nature? We only perceive nature through the filter of consciousness, of *human* consciousness — the same way we perceive mathematics, music, and any other patterned phenomena. Is it any wonder, then, that we find connections between these phenomena? At best, our observations about the connections between human-created mathematics and human-perceived nature are observations about the structure of human consciousness. Although (0) mathematics does not claim to be the study of human consciousness, and (1) there are undoubtedly more direct ways to study human consciousness, if that is indeed our aim.

We want to know if mathematics is truth. But how can we know what truth is? Immersed in our own consciousness, can we find an unbiased perspective, dry land, from which we can observe how we observe how we observe how we observe. . .

III.

Is there truth in music?

The mystery of the “missing” dollar depends on two numbers from the story, 27 and 2, which sum to a number remarkably close to another number from the story, 30. The fallacy is an unjustified use of addition, and an unjustified comparison. Why should 27 and 2 sum to anything relevant? If anything, we should be subtracting 2 from 27 to get the 25 dollars which goes to the manager.

Is it possible that we are only led to questions about the validity of mathematics because we perceive parallels between mathematics and nature? I think so. But just because $2+27$ is close but not equal to 30 does not mean that the operation of addition is somehow inconsistent.

Music is more like $3 + 5$. This sum is nowhere near 30.

IV.

I welcome mathematics and logical thinking into my life as exercises in aesthetics. I appreciate them as I appreciate music, language, sex, and food — and it makes no sense to ask whether any of these is valid.

I do not worry about the validity of mathematics.

Yet is mathematics valid?

I do not even think we will ever know whether it makes sense to ask this question.

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