

# Parables to a Mathematician

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## Abstract

Jesus frequently used parables in His ministry, usually short narratives illustrating the outcomes of people's choices. In John 3:12 and Matthew 13:10-15, He explained that one reason was to be sure that people who genuinely wanted to understand His message would be able to do so. Since most of His audience was familiar with an agrarian economy, Jesus spoke extensively of wheat, fish, trees, wine, debt, tenants, lamps, etc. Many people have speculated on parables Jesus might have used had He lived in a different society. This non-scholarly (but hopefully thought-provoking) talk will propose parables targeted toward groups of mathematicians with various levels of Christian background.

## 1. Parable of the Lecturer

A professor entered her large lecture hall and began to illustrate the details of hypothesis testing to her General Statistics class. Some of her students were busy texting throughout the hour, cradling their phones with the time-honored logic "if she can't actually see my phone, she won't know why I'm staring between my thighs for 50 minutes." At the end of the hour, they left, blissfully unencumbered by the details of P-values. Other students took notes and later started the homework, but then realized the only thing they knew about Type I and Type II errors was that they are both bad. When the exam came, they wrote little and scored little. Still others were enthused about the content and finished the homework assignment, but later in the semester when their extracurricular activities pressed in, they had no more time to study. When the exam came, they wrote much and scored little. But some students thoughtfully listened, read, practiced, and organized. On the exam, some got a B+, some an A-, and some an A. Anyone who hears this should pay attention.

## 2. Parable of Convergence of a Series

To introduce the ratio test for the convergence of infinite series, a calculus professor asked the class to discuss in groups the convergence of  $\sum_{n=1}^{\infty} \frac{n^{400}}{2^n}$ . One group reported divergence by the  $n$ -th term test. When questioned, they displayed a calculator graph of the sequence  $a_n = \frac{n^{400}}{2^n}$  for  $1 \leq n \leq 100$ , showing monotonic increase. The professor suggested trying even larger values of  $n$ ; the group then reported that  $(a_n)$  is monotonic for  $n$  as large as 300, at which point their calculator had a numerical overflow. Overhearing this discussion, several other groups switched their answers to divergent. I tell you, don't be deceived. Don't be surprised when "evidence," even when provided by "experts," arises that my word is not true. Test this "evidence" thoroughly and objectively. Anyone who hears this should pay attention.

## 3. Parable of No Pop Quizzes

Rebecca was doing very well in her discrete math class, which met on Mondays, Wednesdays, and Fridays. One Friday, at the beginning of a unit on logic, the professor announced there would be a pop quiz next week.

Rebecca reasoned that the quiz wouldn't be on Friday since if the quiz hadn't happened by Wednesday, the students would all know it would be on Friday. Since the quiz would then fall on either Monday or Wednesday, by the same reasoning it wouldn't be on Wednesday. But then it wouldn't be a surprise on Monday either, so there could be no quiz at all. Rebecca choose not to study and was very unpleasantly surprised when she did poorly on the pop quiz on Monday. I tell you, watch, for I will return at a date when you don't expect me. Those who are watching will be blessed. Anyone who hears this should pay attention.

#### **4. Parable of “Whose Paper?”**

Three theoretical physicists, Jill Strake, Rafael Ebberle, and Miranda Collet, collaborated on a paper in which certain mathematical properties were derived for spacetime wormholes. The paper was actually a direct continuation of earlier results from Strake incorporating some new ideas from Ebberle. Collet was a senior colleague of Ebberle who participated in several helpful but brief discussions with the other two. The paper was accepted by a mathematical journal, and a review copy was sent to the authors listing them as Collet, Ebberle, and Strake. Strake, believing that she should be listed first as the lead author, contacted the editor who explained that authors' names were always listed in alphabetical order as a matter of editorial policy. Strake requested an exception, explaining that the majority of content was due to her and that her tenure review committee might make incorrect inferences from the citation, but the editorial board declined to adjust. “Since you submitted a paper with three names on it,” the editor said, “presumably you all had a significant part in generating the content. We are publishing your paper as you hoped we would and doing you no disservice by following our policy.” I tell you, the last will be first and the first will be last. Don't become so fixated on your own career that you lose the wonder of discovery of your Father's world. Anyone who hears this should pay attention.

#### **5. Parable of the Journal Review**

The kingdom of heaven is like a mathematical journal's review process which selects the submitted articles meeting the journal's publication standards and rejects the rest. It will be like this at the end of the world.

#### **6. Parable of the Groundbreaking Proof**

The kingdom of heaven is like a famous conjecture outstanding for 350 years, which when a mathematician became obsessed with it, he worked in complete isolation for seven years, then announced a proof with joy. I tell you, let your life be guided by what is truly important, for you will become like the thing into which you invest your time.

#### **7. Parable of Standardized Testing**

The kingdom of heaven is like the secondary school mathematics curriculum into which state legislatures gradually inserted a variety of standardized tests until the whole curriculum was permeated with assessment.

#### **8. Parable of the Old and New**

No one uses classical Euclidean geometry to study the shape of DNA molecules, otherwise the problems would be completely intractable. Rather, to solve these new problems, we use newer concepts from topology and knot theory. Likewise, don't rely totally on human reasoning to explain the Father's unearned love for you and His plan for creation. Logic has its place, but now that you are born again, let the Spirit guide your thinking.

## 9. Parable of the Proofreader

Someone who hears my words is like a mathematician who double checks his proof of a theorem before working on its corollary. When the referees reviewed his paper, they recommended publication it because it was carefully written, based on prior good work, and showed creativity. But the one who does not hear my words is like a mathematician who submits a paper that will not withstand logical examination. When the referees reviewed his paper, it was rejected out of hand. I do not promise you that life will be easy—in fact, I promise that life will be hard. Heaven and earth will pass away, but my word will not pass away. Be sure to invest your life in things that will remain when the power centers of this world crumble.

## 10. Parable of the “Obvious” “Facts”

Brandon, a talented freshman who unfortunately got a 2 on the AP Calculus exam, was beginning to share his boredom in his university Calculus I course. After the professor used the disk method to prove the formula for the volume of a sphere, Brandon commented that obvious results should not need formal proof. The professor invited Brandon for coffee after class. During the course of conversation, the professor asked, “If I have an infinite number of dresser drawers, each with at least one sock in it, is it possible to select exactly one sock from each drawer?” “Sure,” replied Brandon. “OK,” the professor continued, “and if I cut a solid ball apart and put the pieces back together into another solid ball, must the volume remain the same?” “Sounds right,” replied Brandon a little less confidently. The professor then explained that the Banach-Tarski Paradox shows that both of these obvious facts can’t be simultaneously true. I tell you, be alert for oversimplifying issues—think them through with the Spirit’s guidance. And when you have the opportunity to express your opinions, express them with courtesy and meekness, realizing that if even your perceptions about mathematics can be badly inaccurate, your opinions about spiritual matters may also be flawed. Anyone who hears this should pay attention.

## 11. Parable of an Axiom Choice

There are many spirits gone out into the world; consider carefully what you accept as absolute truth, for your beliefs will build upon themselves and shape your whole world. Learn a lesson from geometry. A Euclidean carpenter mindlessly squares up foundation walls using 3-4-5 right triangles, fits together rectangular bricks, and builds bridges across angles by starting in the interior and building straight out to the sides of the angle. On the other hand, a hyperbolic carpenter measures areas of triangles with a protractor, measures distances in “absolute length units,” and simply accepts without question that all roofs sag. These two carpenters could never build together—each would believe the other is a madman. Such will be the fate of all your human relationships if you become deceived into thinking your own opinions are canonical.

## Conclusion

I found the writing of these parables to be extremely difficult. When I reflected about why this was, I realized a number of reasons: my mind kept starting with the mathematics rather than with the spiritual principle (is this a math conference for Christians or a Christian conference for mathematicians), I personally have few relationships with people having both mathematical sophistication and Christian naiveté, storytelling is de-emphasized in western academic culture, getting the right length is essential to a good parable, it is hard to decide how much humor to incorporate, and it would be nearly sacrilegious to contextualize some parables (such as the prodigal son).