INTRODUCTION

Probability is the practice of quantifying uncertainty. It harnesses the power of mathematics to deal with our doubt, our ignorance, and our lack of guarantees in life. Like all of the best math, probability is brimming not just with practical applications, but with lovely ideas. It's like a gorgeous painting that also functions as a dishwasher.

Probability is beautiful, useful—and oh yeah, totally befuddling to most people who confront it. Consider some of the obstacles:

1. Probability is often **counterintuitive**. When dealing with uncertainties, our minds struggle to overcome built-in biases that run counter to logic and reason.

2. Probability is **not algorithmic**. In algebra, just memorizing the right steps will take you a long way (towards getting right answers, at least). But in probability, each question is a world unto itself.

3. Probabilities are expressed as **fractions**, which vex plenty of people in their own right.

4. Probability demands comfort with **very small** and **very large** quantities. For example, suppose I've got 20 different novels in a box. If I remove them randomly, one by one, what's the probability that they emerge in order from shortest to longest? Roughly 1 in 2 quintillion—a number beyond the typical limits of the human imagination.

5. Probability builds on **combinatorics**—the mathematics of sophisticated counting. Probability courses often begin with an intimidating unit on combinations, permutations, and the like. Conceptually, it's the right starting point. But pedagogically, it's awfully deep water for students just learning to swim.

Usually, someone learning probability tackles all these challenges at once. My hope is to isolate the first two obstacles: to help you wade into the non-algorithmic, counterintuitive nature of probability without getting drawn into the riptide of combinatorics and computations.

That's where the stories come in.

Narrative engages the mind. I've seen it happen in the classroom. A little story—even a clumsy or tangential one—grabs students in a way that few lectures do. Whereas concepts are so smooth that they slip right through our fingers, stories give us texture, a rough surface to grasp. Once engaged, we find our intuition and critical faculties (too often dormant in math class) hum to life. We're ready to wrestle with the big ideas, rather than crying "Uncle!" at the first sign of resistance.

Let's be clear. You won't learn probability just by reading stories. That'll take teachers, puzzles, struggles, and most of all, time. But I humbly offer these clumsy tales (with their even clumsier illustrations) in the hopes that they might spark a few insights or arguments.

After all, insights and arguments are what math is all about.

These stories emerged from conversations with my father, James Orlin. We're currently working on a book about probability, which, unlike these stories, shall feature no monkeys. Sorry, monkey-and-math aficionados.