

My preface

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[My stats textbook will be available in print and as a free online PDF.

Now, as somebody who keeps writing books, I can't tell you how great is the temptation to meta-write. To have a nice, long intro about why I wrote the book and who I have in mind as the reader and what problems I surmounted in writing it and other things that are of marginal interest to people who aren't the author. It's a nice form of procrastination. At the extreme, you have this guide to Ruby¹, which goes for a long time before you get to the subject and even then has frequent meta-sidebars. A textbook needs to have this, because a textbook intro is actually an extended advertisement explaining to professors why they should adopt the text for their class, but I managed to keep the intro down to 14 out of 400 pages (equals 3.5%), which I count as OK in the context.

So I wrote the following intro to the online version, and then realized that it's all meta-writing—even a bit maudlin—and so scrapped it. [Maudlin, from the OED: Having reached the stage of drunkenness characterized by tearful sentimentality and effusive displays of affection.]

Now that you have the context—the meta-meta-writing—here's the intro that the online edition will not have.]

Nobody ever believes me when I tell them I grew up poor. But it's true: my family didn't clear the poverty line until I was about twenty years old. Needless to say, my personal library was rather limited, primarily consisting of whatever was under two bucks at the used book store, and a nickel copy of *The Magic House of Numbers* that my brother bought from the Bottenfield Elementary School library clear-out sale. [The fact that it was my brother's made it all that much more intriguing, and I read through it many times.] I spent endless hours at the local library, or sitting at the back of the bookstore at the strip mall next to our apartment complex. The employees there just wheeled their carts around me as I sat on the floor, reading books from cover to cover.

Somewhere around 19 I got my first computer, which I bought using my income from a summer as a bike messenger. I already knew the basics of working the thing, thanks to a Champaign Park District BASIC course, a 10th grade PASCAL class, and many hours at a friend's house. It wasn't cheap, but now that I had that laptop, I had the tools to create whatever world I wanted.

I spent a year of college at the London School of Economics, which my university paid for via my need-based financial aid. At the airport, I passed through the UK customs agents with a letter stating that I had the finances necessary to pay for my life in London, but that was a blatant lie. My housing and tuition were paid for, but food was not. Fortunately, the computer science department paid me under the table to teach Mathematica tutorials. In the evenings, while everybody else was out dropping another ten quid at the bar, I was at home with that laptop, writing papers and models, and

¹<http://poignantguide.net/ruby/>

doing haphazard and completely unpublishable research. In many ways, it was a great year.

As you can see from this book, I've learned a modest amount of math and computational stats since then. And all my progress has been possible because mathematics is free.

Because of my own experience, I want mathematics and tools for mathematics education to remain as free as possible. When, in the tradeoff between lower property taxes and better public schools, a person tells me they prefer lower taxes, my skin crawls—especially when they justify it by saying their kids go to a private school so public school quality doesn't matter. I have written extensively in opposition to the court rulings that made it possible for mathematical algorithms to receive U.S. patents because—beyond its legal and economic senselessness—the thought of paying a licensing fee for a mathematical algorithm seems fundamentally unethical to me. No one should be able to bill you for math you have done yourself.

This book is based on free software partly because I placed high priority on writing code that is as portable as possible, and if you need to jump through licensing hoops to transfer your work from one computer to another, then it is not portable. But the choice of tools is also based in that conviction that mathematics should be free. A book about how to use a thousand-dollar stats package is of limited use, and gives the vague impression that mathematics is a sport for those with a budget.² It points to one more little barrier between a curious kid with a used PC and the mathematical world.

There's a joke (except it's true) that Russia is a powerhouse in mathematics because Russians didn't have the money to do any other kind of science. Computational modeling is also a science anybody can do, because fifty bucks will buy a used computer that could easily host any of the tools in this book. The One Laptop Per Child project hopes to distribute basic computers to children throughout the developing world. Based on the specs as of this writing (500 mHz processor, 128 MB RAM, 512 MB storage), the tools here would comfortably run on an OLPC laptop.

I've read a lot of textbooks in the process of writing my own, and I increasingly think that the intended audience for any textbook (whatever the author may claim) is the author, some number of years ago. The methods in this book work for me in the present day, where I need efficient and effective tools for projects with hundred thousand dollar budgets at the world's largest organizations. But I have made certain that these methods remain useful to somebody like the earlier me, who just had a low-end laptop, a sporadic Internet connection, and a desire to learn and explore.

I understand the economics behind the seemingly high price of textbooks, and I know that this book will be available at most academic libraries (because libraries often subscribe to a press, meaning they get everything the press publishes, good and bad). But having the book available anywhere and to anyone is one less barrier to mathematics education for those who do not have the traditional support systems behind them. And that is why, with the gracious permission of [academic publisher], this book is available as a free download.

²Yes, I know it's very easy to break the license and get a copy of STATA or Mathematica or what-have-you, but why bother when there are entirely above-board ways of getting free software?