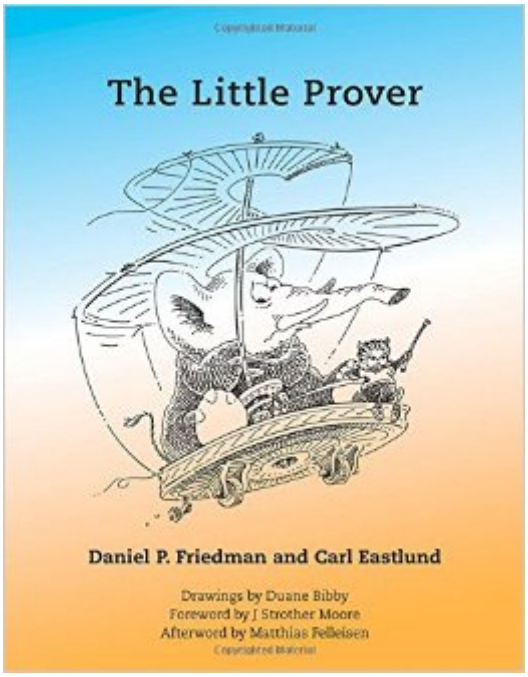
The Little Prover (MIT Press)



Synopsis

The Little Prover introduces inductive proofs as a way to determine facts about computer programs. It is written in an approachable, engaging style of question-and-answer, with the characteristic humor of The Little Schemer (fourth edition, MIT Press). Sometimes the best way to learn something is to sit down and do it; the book takes readers through step-by-step examples showing how to write inductive proofs. The Little Prover assumes only knowledge of recursive programs and lists (as presented in the first three chapters of The Little Schemer) and uses only a few terms beyond what novice programmers already know. The book comes with a simple proof assistant to help readers work through the book and complete solutions to every example.

Book Information

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Customer Reviews

Disclaimer: I was a tech reviewer for this book.Ever since computer programming was invented, bugs have been the bane of every programmer’s existence. But does it have to be that way? What if we could prove our programs correct? Computer-aided theorem proving applied to proving programs correct has a long and rich history, and its use has accelerated greatly over the past decade. I believe that this will be a foundational subject for the next generation of programmers, as the type systems for existing languages reach their limits and are replaced by richer type systems which require theorem provers as an integral part of the programming process. (Languages/environments like Agda, Coq, and Idris are exploring this space already.) The Little

Prover is a very accessible introduction to theorem proving; if you understand the first few chapters of The Little Schemer (and are willing to work!) you will be able to follow The Little Prover. In addition, the material is fascinating in its own right and will be worthwhile reading as brain food for programmers looking for a new challenge (much like the other "Little" books that Friedman et al have written). However, don’t confuse "accessible" with "easy". Compared to a lot of modern proof assistant software like Coq, the proofs are quite manual and require a lot of user guidance. This is actually advantageous in a book like this, because you see every step and never have to wonder how we got from point A to point B (plus the authors are doing all the hard work; you just have to follow along!). The authors also provide a downloadable proof assistant which is extremely helpful when the proofs get sufficiently complex, and they list all the proofs in their final form in the back of the book.