For Laura, Penny and Imogen
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Appendix A: Ruby Primer and Review for Developers

The Basics

Definition and Concepts

The Ruby Interpreter and Running Ruby Code

Interactive Ruby

Expressions and Flow Control

Basic Expressions

Class Mismatches

Comparison Expressions

Flow

Object Orientation

Objects

Classes and Methods

Reflection

Reopening Classes

Method Visibility

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Foreword

here is a nice mountain in japan. this one's just a meadow with a horse taking it easy.

oh, nice! a bowl of curry! so delicious...

see! isn't this totally not dumbed down, just not in a rush.

The easiest introduction?

AN INTRO & FOREWORD TO {BEGINNING} RUBY

supposed to be corned beef with cabbage! pretty neat, eh?

hey, so when I was a kid, we'd find grasshoppers in the road, right??
one of my friends (Ben) took apart some great stuff, such as BEES, LADYBUGS, DRAGONFLIES and stuff like MICE and ROLY-POLY BUGS (also called PILLS...)

we concocted new animals!

the Bumblehopper Mach VII
the Muddledy Mountain Whale
the Long Bus to Pincervania

and we traded in the FREE MARKET style.

ahh waa

yes, it's true! Ruby's inventor, YUKIHIRO MATSUMOTO ("matz") chopped up all of his FAVORITE COMPUTER LANGUAGES...

INTO THIS TOTALLY TWISTED NEW LANGUAGE: RUBY!

like some kind of elephant that's a bat and a pygmy horse... but also... YOUR FRIEND!
Ohh, blam!

**RUBY IS EVERYTHING!**

All languages in one!

If I had kids like that I would award them a special Powerful Young Minds award. They always know exactly where their lifejackets are! And, in an emergency situation, you can't be opening all of those different compartments... that's nuts.

Get some beef sticks and gauze in that drawer!

So, wait, does Ruby cram everything in there all haphazardly? My kids cram all their lifejackets under the backseat of my boat and let me say it's a disaster.

The gentleman father makes a good point: isn't Ruby terribly complex with so much stuffed inside?

Most people don't use ALL of Ruby. You start with the simple stuff, you know?

Like how the black keys on a piano are only for sad songs?

Well, you won't be playing any sad songs after learning Ruby, so you can simplify your life and rip those black keys out today.

(holds up CD)

*Goodbye "I Just Died in Your Arms Tonight" by Cutting Crew! I guess I won't need you anymore.*

**Crowbar**

Whatever the case may be, you're going to be a whiz!*

**You're an amazing person!**

(Churry... write your name)

*So long as you don't get sidetracked playing Final Fantasy or Rollerblading or whatever...*
About the Author

Peter Cooper is an experienced Ruby developer and trainer and editor of Ruby Weekly (http://www.rubyweekly.com/) and JavaScript Weekly (http://javascriptweekly.com/).

Since 2004, Peter has developed many commercial web sites using Ruby on Rails, the Ruby-based web framework.

In addition to development work, Peter has written professionally about various development techniques and tools since 1998.

He lives in Lincolnshire, England, with his wife, Laura and children, Penny and Imogen.
Ronald Petty, M.B.A., M.S., is founder of Minimum Distance LLC, a management consulting firm based in San Francisco. He spends his time helping technology-based startups do the right thing. He is also an instructor at UC Berkeley Extension.
It is often said that writing is a lonely task, but it’s not until you write a book that you realize the process has to be anything but lonely. Without the help and reassurance of the large team of people backing this book, and backing me personally, this book could not have been written.

My first thanks go to Keir Thomas, who approached me with the idea of writing a Ruby book back in 2005. He gave me great freedom over the scope and specification of the book, and was the most essential piece of the puzzle in getting the book approved and everything sorted out in the early stages.

Beth Christmas and Mark Powers of Apress deserve special thanks for their project management and reassurance during the writing of this book across the three editions of this book so far. Without their schedules and assurance that everything was on track, I would have been a nervous wreck.

Jonathan Gennick, Tim Fletcher, Peter Marklund, Alan Bradburne, Ronald Petty, and Peter Szinek deserve much praise for their seemingly unending reading and rereading of this book’s chapters throughout the various stages of development. I’d also like to praise Susannah Davidson Pfalzer for her diligent approach to copy editing the first edition of this book by fixing my pronouns, removing my overuse of words like however and therefore, and generally making it possible to read the book without going insane. As the first edition of this book was my first book for Apress, I depended on Susannah’s deep knowledge of Apress customs a great deal. For the second edition of the book, I thank Damon Larson for performing the same role admirably, and for this third edition, thanks to Kezia Endsley.

Naturally, thanks go to all of the other people I directly worked with on the book, whether they’re from Apress or independent. In no particular order: Michelle Lowman, Laura Esterman, Candace English, Nancy Bell, Jason Gilmore, Lori Bring, Nancy Sixsmith, and “why the lucky stiff.”

Separately from the book itself, I have to give thanks to many in the Ruby community for working alongside me, producing tools I’ve used, or just making the Ruby language more appealing in general. In no particular order: “why the lucky stiff” (for an unforgettable foreword), Yukihiro “Matz” Matsumoto, Zach Inglis, Satish Talim, Amy Hoy, Evan Weaver, Geoffrey Grosenbach, Obie Fernandez, Gregg Pollack, Jason Seifer, Damien Tanner, Chris Roos, Martin Sadler, Pat Eyler, Ian Oszvald, Caius Durling, Jeremy Jarvis, Nic Williams, Shane Vitarana, Josh Catone, Ryan Tomayko, Karel Minarik, Jonathan Conway, Alex MacCaw, Benjamin Curtis, David Heinemeier Hansson, and the late James Golick and Jim Weirich. I am anxious I’ve missed some names, especially with the exploding population of the Ruby community between the three editions of this book, so if you’re missing from this list, I humbly apologize.

Those in my personal life have also supported me a great deal by putting up with my weird work hours and annoying habits, and by asking questions about the book, feeding me, or just being there to talk to. In this regard I’d like to thank—again in no particular order—Laura Cooper, Clive Cooper, Ann Cooper, David Sculley, Michael Wong, Dave Hunt, Chris Ueland, Ben Neumann, Rob Willie, Kristian Roebuck, Graham Craggs, Lorraine Craggs, and Robert Smith. Laura Cooper deserves a special mention for having had to put up with me nearly 24 hours a day during the writing of this book; she is awesome.

Last, it’s necessary to thank you, the reader, for choosing to buy this book, for if no one bought it, these acknowledgments and the efforts of many people during the writing would have been wasted. Thank you! If at all possible, both I and all of the fine folks at Apress would be delighted if you’d be able to post a small review of this book on Amazon.com, Amazon.co.uk, or whichever online bookstore is popular in your part of the world. Reading the reviews makes our day!
I wanted to minimize my frustration during programming, so I want to minimize my effort in programming. That was my primary goal in designing Ruby. I want to have fun in programming myself.

—Yukihiro Matsumoto (Matz), creator of Ruby

Ruby is a “best of breed” language that has been assembled from the best and most powerful programming features found in its predecessors.

—Jim White

Ruby makes me smile.

—Amy Hoy (slash7.com)

Ruby is a fun toy. It’s also a serious programming language. Ruby is the jolly uncle who puts in solid 12-hour days at the construction site during the week but keeps the kids entertained come rain or shine. To hundreds of thousands of programmers, Ruby has become a good friend and a trusted servant, and has revealed a new way of thinking about programming and software development. It’s fun and it works.

Like the guitar, it’s claimed that Ruby is an easy language to learn and a hard one to master. I agree, with some provisions. If you don’t know any programming languages already, Ruby will be surprisingly easy to learn. If you already know some languages such as PHP, Perl, BASIC, C, or Pascal, some of the concepts in Ruby will already be familiar to you, but the different perspective Ruby takes could throw you at first. Like the differences between spoken languages, Ruby differs from most other programming languages not only by syntax, but by culture, grammar, and customs. In fact, Ruby has more in common with more esoteric languages like LISP and Smalltalk than with better-known languages such as PHP and C++.

While Ruby’s roots might be different from other languages, it’s heavily used and respected in many industries. Companies that use or support Ruby in one way or another include such prestigious names as Sun Microsystems, Intel, Microsoft, Apple, and Amazon.com. The Ruby on Rails web framework is a system for developing web applications that uses Ruby as its base language, and it powers hundreds of large web sites. Ruby is also used as a generic language from the command prompt, much like Perl. Grammarians, biochemists, database administrators, and thousands of other professionals and hobbyists use Ruby to make their work easier. Ruby is a truly international language with almost unlimited application.

This book is designed to cater both to people new to programming and to those with programming experience in other languages. Ruby’s culture is different enough from other languages that most of this book will be of use to both groups. Any large sections that can be skipped by already proficient programmers are noted in the text. In any case, I’d suggest that all programmers at least speed-read the sections that might seem obvious to them, as there are some surprising ways in which Ruby is different from what you’ve done before.
When reading this book, be prepared for a little informality, some quirky examples, and a heavy dose of pragmatism. Ruby is an extremely pragmatic language, less concerned with formalities and more concerned with ease of development and valid results. From time to time, I’ll show you how you can do things the “wrong” way in Ruby, merely for illustrative purposes, but mostly you’ll be working with code that does things “the Ruby way.” When I started to learn Ruby, I learned primarily by example, and with a language as original and idiomatic as Ruby, it’s the easiest way to pick up good habits for the future. However, there’s always more than one way to do it, so if you think some code in this book could be rewritten in a different way that fits in more with your way of thinking, try it out!

As you start this book, be prepared to think in new ways and to feel motivated to start coding for both fun and profit. Ruby has helped a lot of jaded developers become productive once again, and whether you’re a beginner to programming or one of those jaded programmers, it’s almost inevitable that you’ll see how Ruby can be both fun and productive for you.

Last, if you’re coming from other modern scripting languages such as Perl, PHP, or Python, you might want to jump to Appendix A before reading Chapter 1. It covers the key differences between Ruby and other scripting languages, which might help you move through the initial chapters of this book more easily.

Good luck, and I hope you enjoy this book. I’ll see you in Chapter 1.