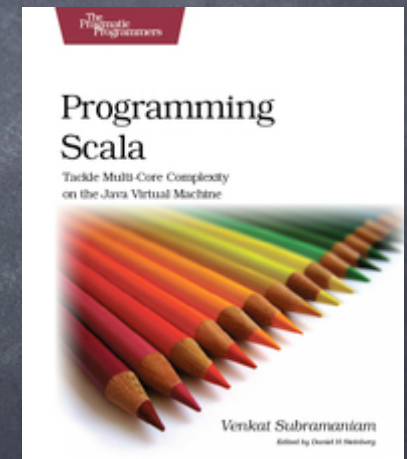
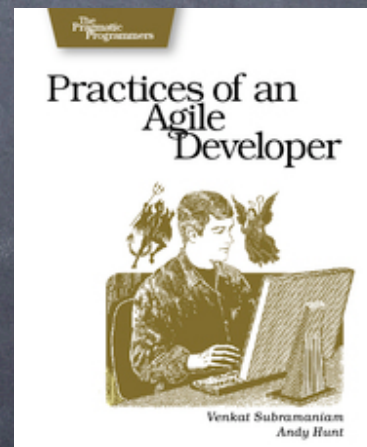
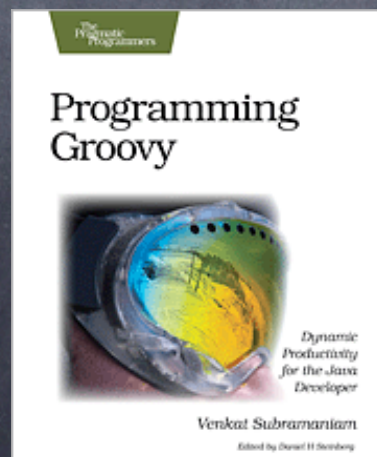


# Functional Programming

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# Not Your Father's Environment

Your World: Multiprocessors are Common Place

Multithreading on Steroids

“Well Written” Programs may be ill-fated on  
Multiprocessors



# Cry for Higher Level Of Abstraction

Threading Support of Java/.NET Won't Cut It

As soon as you create a thread,  
you worry how to control it

synchronize is latin for waste Concurrency



# How can Functional Programming Help?

Assignment-less Programming

Immutable State

You can't Screwup what  
you can't change



# But What's FP?

Functions are first-class citizens

create them wherever you like,  
store them, pass them around, ...

Higher Order Functions

Functions accept functions as  
parameters



# What Made Lisp Special

• Paul Graham's list

1. Conditionals
2. A function type
3. Recursion
4. Concept of variables
5. Garbage-collection
6. Composed of Expressions
7. A symbol type
8. Notation for tree of symbols
9. Whole Program always available



# Exercise 1

- Write Pseudo code for finding factorial of a number



# Exercise 2

- Use Recursion for Factorial



# Exercise 3

- Can you improve the recursion?



# Exercise 4

- Write a program that will find the max of two given numbers



# Exercise 5

- Write a program to find the Fibonacci series until a given number of terms



# Exercise 6

- Given a list of numbers, find the double of each element



# Exercise 7

- Write a program that will find max of given several numbers



# Exercise 8

- Can you think of another way to find double of values in a list?



# Exercise 9

- Given a list of ticker symbols, write a program that will go out to the web and get their closing price last year and determine the stock with highest price



# Exercise 10

- Can you improve the response of the above code?



# Thank You

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