

Functional Programming for rubyists

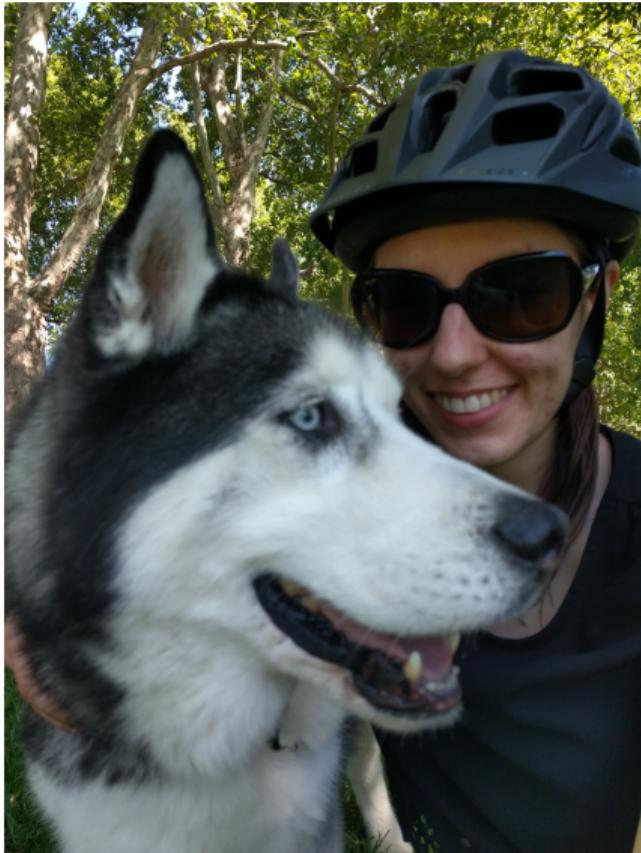
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Rampant side effects

Shifting sands of mutable state beneath
your feet

Enter Functional Programming



What should you get out of this?

- ▶ What is the core of FP?
- ▶ How can it help with problems you've experienced?
- ▶ How to use it in ruby projects you're already working on
- ▶ It's not that hard and complicated
- ▶ No neckbeard required

What will we cover

- ▶ Immutability
- ▶ Putting off side effects
- ▶ Referential transparency
- ▶ Common traps when explaining to others and avoiding them
- ▶ How to learn more

Stop things changing behind my back

Immutability

- ▶ Don't change any values, use only constants
- ▶ Instead of changing create a new one
- ▶ Recursion and accumulators over loops and mutation
- ▶ Confusion over passing by value or reference? Gone.
- ▶ Ever thought about using a ! or not? That's worrying about mutation



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Example

What are side effects?

- ▶ When your code affects the outside world
- ▶ Printing
- ▶ Writing to disk
- ▶ Network calls

What do they have to do with FP?

- ▶ Separate your logic from your side effects
- ▶ Push your side effects out in to the edge of your system
- ▶ In the middle of your system make representations of the side effects
- ▶ Makes the core easier to test and reason about
- ▶ No side effects to stub → simpler tests
- ▶ Push hard testing out to the edge

Example

Referential transparency

- ▶ The combination of immutability and no side effects
- ▶ When you call a function again you get the same result
- ▶ Includes no side effects
- ▶ You can substitute the saved result of the function for the call
- ▶ Everything a function does is represented by the result
- ▶ Nothing unexpected!

Example

Teaching FP

- ▶ Don't get too mathematical
- ▶ Relate to stuff they already know
- ▶ Focus on examples
- ▶ Avoid the scary words like monad until they understand it
- ▶ Focus on advantages to them
- ▶ Pick your battles

Learning more and questions

- ▶ Functional Programming Principles in Scala on coursera
- ▶ Functional programming in Scala by Paul Chiusano and Rúnar Bjarnason
- ▶ Refactoring Ruby with Monads by Tom Stuart
- ▶ github.com/cwmyers/FunctionalTraining
- ▶ github.com/NICTA/course
- ▶ github.com/biancaG/fp-for-rubyists

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Stop things changing behind our backs