

# Pro Scala: Monadic Design Patterns for the Web

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# Preface

The book you hold in your hands, Dear Reader, is not at all what you expected...



# Chapter 1

## Motivation and Background

*Where are we; how did we get here; and where are we going?*

TBD

## 1.1 Where are we

1.1.1 The concurrency squeeze: from the hardware up, from the web down

1.1.2 Advances in functional programming, monads and the awkward squad

1.1.3 Ubiquity of robust, high-performance virtual machines

## 1.2 Where are we going

1.2.1 A functional web

1.2.2 DSL-based design

## 1.3 How are we going to get there

1.3.1 Leading by example

# Chapter 2

## Toolbox

*Notation and terminology*

TBD

### 2.1 Introduction to notation and terminology

TBD

### 2.2 Introduction to core design patterns

TBD

### 2.3 Variations in presentation

TBD



# Chapter 3

## An IO-monad for http streams

*Code first; questions later*

TBD

### 3.1 Code first, questions later

TBD

### 3.2 Synchrony, asynchrony and buffering

TBD

### 3.3 State, statelessness and continuations

TBD





# Chapter 4

## Parsing requests, monadically

*How to get from the obligatory to the well formed*

TBD

### 4.1 Obligatory parsing monad

TBD

### 4.2 Your parser combinators are showing

TBD

### 4.3 EBNF and why higher levels of abstraction are better

TBD



# Chapter 5

## The domain model as abstract syntax

*In which Pooh and Piglet understand the value of pipelines*

TBD

### 5.1 Our abstract syntax

TBD

### 5.2 Our application domain model

TBD

### 5.3 A transform pipeline

TBD



## Chapter 6

# Zippers and contexts and URI's, oh my!

*Zippers are not just for Bruno anymore*

TBD

### 6.1 Zippers are not just for Bruno anymore

TBD

### 6.2 Constructing contexts and zippers from data types

TBD

### 6.3 Mapping URIs to zipper-based paths and back

TBD



# Chapter 7

## A review of collections as monads

*Where are we; how did we get here; and where are we going?*

TBD

### 7.1 Monad as container

TBD

### 7.2 Monads and take-out

TBD





# Chapter 8

## Domain model, storage and state

*Mapping to the backend*

TBD

### 8.1 Mapping our domain model to storage

TBD

### 8.2 Storage and language-integrated query

TBD

### 8.3 Continuations revisited

TBD



# Chapter 9

## Putting it all together

*The application as a whole*

TBD

### 9.1 Our web application end-to-end

TBD

### 9.2 Deploying our application

#### 9.2.1 Why we are not deploying on GAE

### 9.3 From one web application to web framework

TBD



# Chapter 10

## The semantic web

*Where are we; how did we get here; and where are we going?*

TBD

### 10.1 How our web framework enables different kinds of application queries

TBD

### 10.2 Searching for programs

TBD