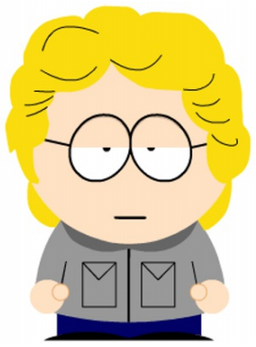
Smaller!

Craig Buchek

http://boochtek.com/aatc2017

About Me



Craig Buchek

BoochTek

This Agile Life

Obligatory Cat Picture

Smaller - Why?

- Focus on what's valuable
- Focus on task at hand
  - It's easier to focus on smaller things
  - We get bored when we work too long on a single thing
- Builds momentum
- Easier to modify
- Easier to throw away
- Smaller code usually runs faster
  - Does less
  - Fits in cache better

Smaller - What?

- Stories
- Tests
- Methods
- Classes
- Commits
- Releases

Smaller - How?

- Story splitting
- Better tests
- Refactoring
- Discipline

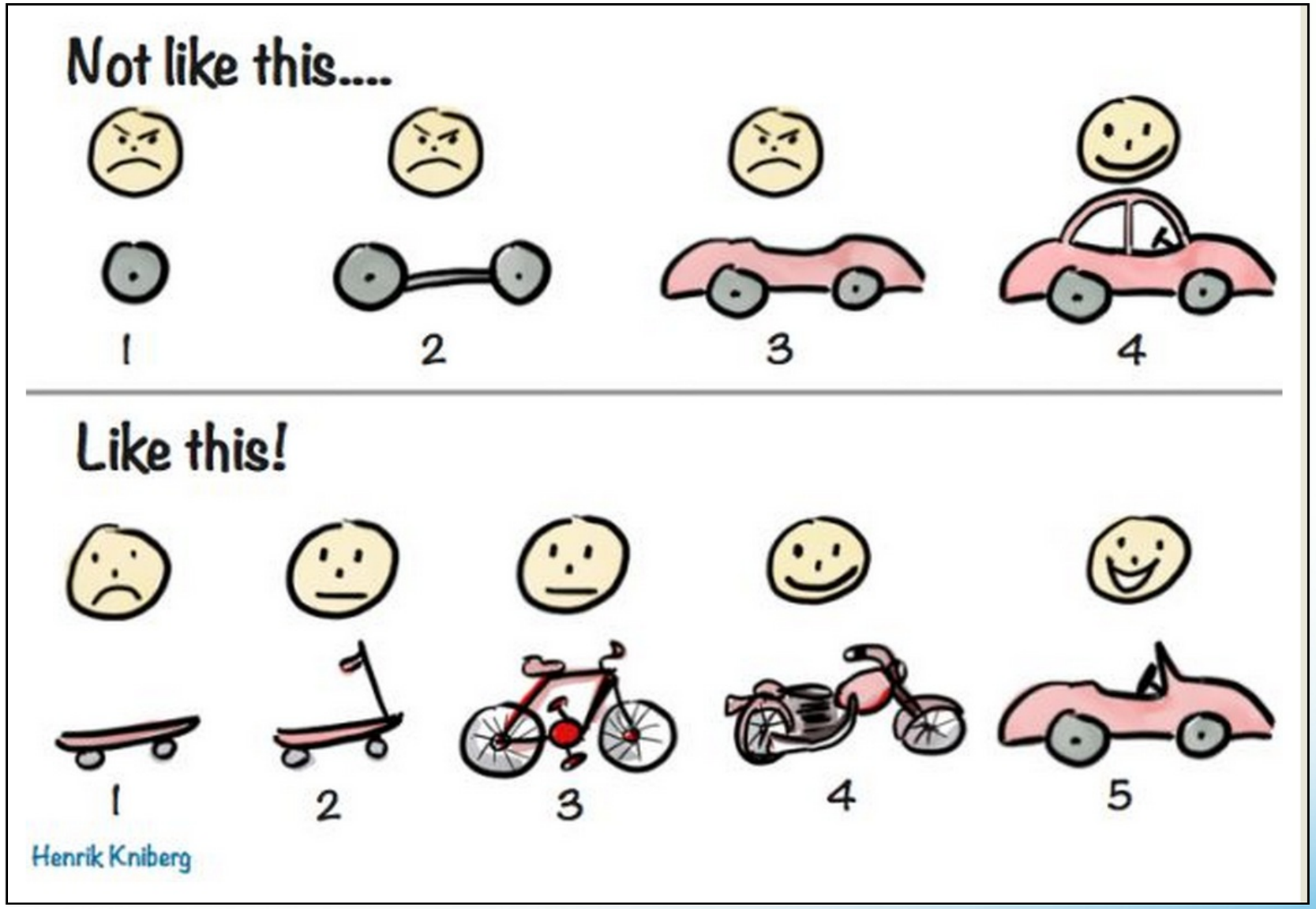
Smaller Stories - Why?

- Smaller stories can be estimated more easily
- Smaller stories can be completed quicker
  - Delivers value quicker
  - Making quicker progress leads to more progress
- It's easier to realize you don't need a smaller story

Smaller Stories - How?

- Thin vertical slices
- Story splitting
- Minimal Marketable Feature (MMF)
- One acceptance criteria per story
- INVEST
  - Independent
  - Negotiable
  - Valuable
  - Estimable
  - Small
  - Testable

Vertically Sliced Increments



Thin Vertical Slices - Login

As a user,
I want to log **in**,
So that I can use the app

Given an existing user account
When I log **in** with correct credentials
Then I should be logged **in**

Given an existing user account
When I log **in** with incorrect credentials
Then I should see an error message
And I should **not** be logged **in**

Thin Vertical Slices - Point of Sale

As a customer,
I want to buy something from the store,
So that I can take it home **and** use it

When I take something to the cash register
And the cashier rings it up
Then the cash register should look up the price
And tax should be added
And I should be able to pay by cash, check, **or** credit card
And a receipt should be printed
And inventory should be updated

Smaller Tests

- Arrange, Act, Assert
  - Do as little as possible in each step
- One assertion per test
- Better understanding of the problem
- Focus on the problem before thinking about solutions
- If you nest describe blocks:
  - Put your initial state on the outside
- Discipline

Smaller Methods

- Should do one thing
- Use more declarative terms
  - Don't pretend to tell when you're asking
    - Don't use get or compute methods
- Don't have methods that pre-compute values
  - Just ask for the value when you need it
    - Memoize if necessary

Smaller Classes

- Single Responsibility Principle (SRP)
  - A class should have only one reason to change

Refactoring

Modifying code to improve its internal structure, without changing its external behavior, in order to make it easier to understand and cheaper to modify

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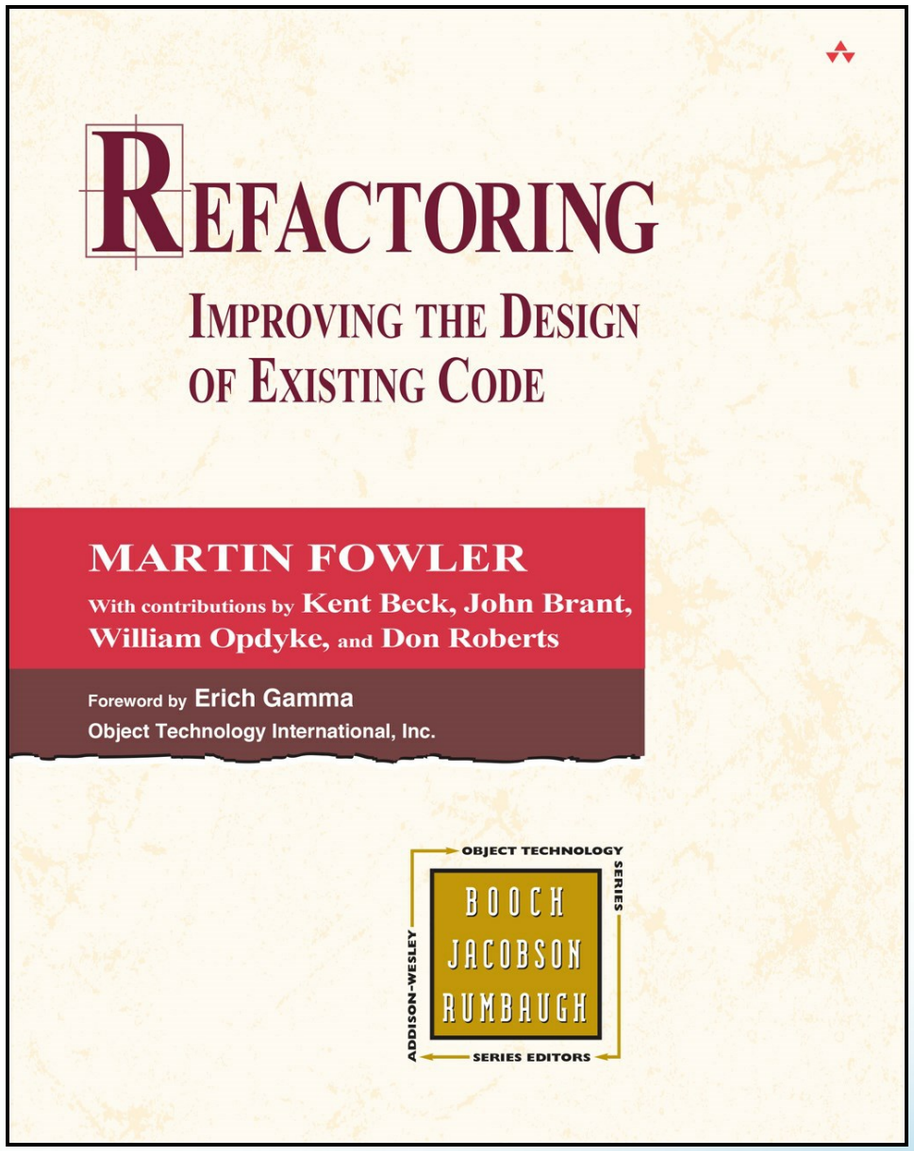
Refactoring - Canonical Reference



Why Refactor?

- Readability
- Simplification
  - DRY - Don't Repeat Yourself
  - SRP - Single Responsibility Principle
- Improved extensibility
- Maintainability
- Reduced bugs
- Improved performance

When To Refactor

- Before making requested changes
  - To clarify what's going on
- After adding requested changes
  - Red, Green, Refactor
- When you realize you've got too much tech debt
- When you see something that's a problem

What Do I Need to Refactor?

- Knowing what code needs refactoring
- Tests for the code in question
- Knowing what refactorings are available
- Automated refactoring tools (optional)

Refactorings Have Names

- Extract Method
- Move Method
- Extract Variable
- Inline Temp
- Replace Parameter with Method

Catalog of refactorings: https://refactoring.com/catalog/

How Do I Know What To Refactor?

- Code "smells"
- Heuristics
  - Sandi Metz's rules
- Your own *gut feelings* from experience
- Test "smells"

Code Smells

- Duplicated code
- God class
- Feature envy
- Too many parameters
- Long method
- Comment

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Test Smells

- Too many collaborators
- Tests mirror code too closely
- Fragile tests
- Slow tests

- If your tests are hard to write, your code is probably too complex

Sandi Metz's Rules

1. Classes should be no longer than 100 lines of code
2. Methods should be no longer than 5 lines of code
3. Methods should take no more than 4 parameters
    - Hash options count as parameters
4. Break the rules only if you can convince your pair

When Am I Done Refactoring?

- When code is as clear as possible
- You're likely **not** overdoing it
- When every method is 1 line long
  - Preferably with no ifs
- When you meet the Sandi Metz metrics
- When you meet the Four Rules of Simple Design
  - Passes the tests
  - Reveals intention
  - No duplication
  - Fewest elements

Smaller Methods - Booleans

- Original

```
def deletable?
  if sequential_approvers_enabled?
    !answered?
  else
    true
  end
end
```

Smaller Methods - Booleans

- Amos's partial refactoring

```
def deletable?
  !(sequential_approvers_enabled? && answered?)
end
```

OR

```
def deletable?
  !sequential_approvers_enabled? || !answered?
end
```

Smaller Methods - Booleans

- Amos's suggested refactoring

```
def deletable?
  sequential_approvers_disabled? || unanswered?
end

def unanswered?
  !answered?
end

def sequential_approvers_disabled?
  !sequential_approvers_enabled?
end
```

Smaller Commits - Why?

- Rolling back an atomic unit
- git bisect

Smaller Releases - Why?

- Less to go wrong
- Practice makes perfect

Smaller Releases - How?

- Build confidence with customers and management
- Release bug fixes "out of band"
- Show that smaller changes are less risky
- Keep decreasing time between releases

What Else?

- Meetings!
- Feedback loops
- Pair-switching
  - Every 2 hours
  - Every hour?
- Others?

Exceptions to the Rule

- Time spent with the customer
- Commit messages
- Others?

Workshop

https://github.com/boochtek/aatc2017

Thanks

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Feedback

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- Email: craig@boochtek.com

- Slides: http://boochtek.com/aatc2017
  - Remark presentation software