

Simplicity in Code

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What is simplicity?

Technical skill is mastery of complexity, while creativity is mastery of simplicity.

– Christopher Zeeman

What is simplicity?

Avoiding complexity

especially *needless* complexity

Finding apt solutions

Elegance

Asking yourself “why didn’t I come up with this?”

Measuring simplicity

Lines of Code (hrm...)

Time it took to develop (hrm... hrm...)

Amount of programmers

Measuring simplicity

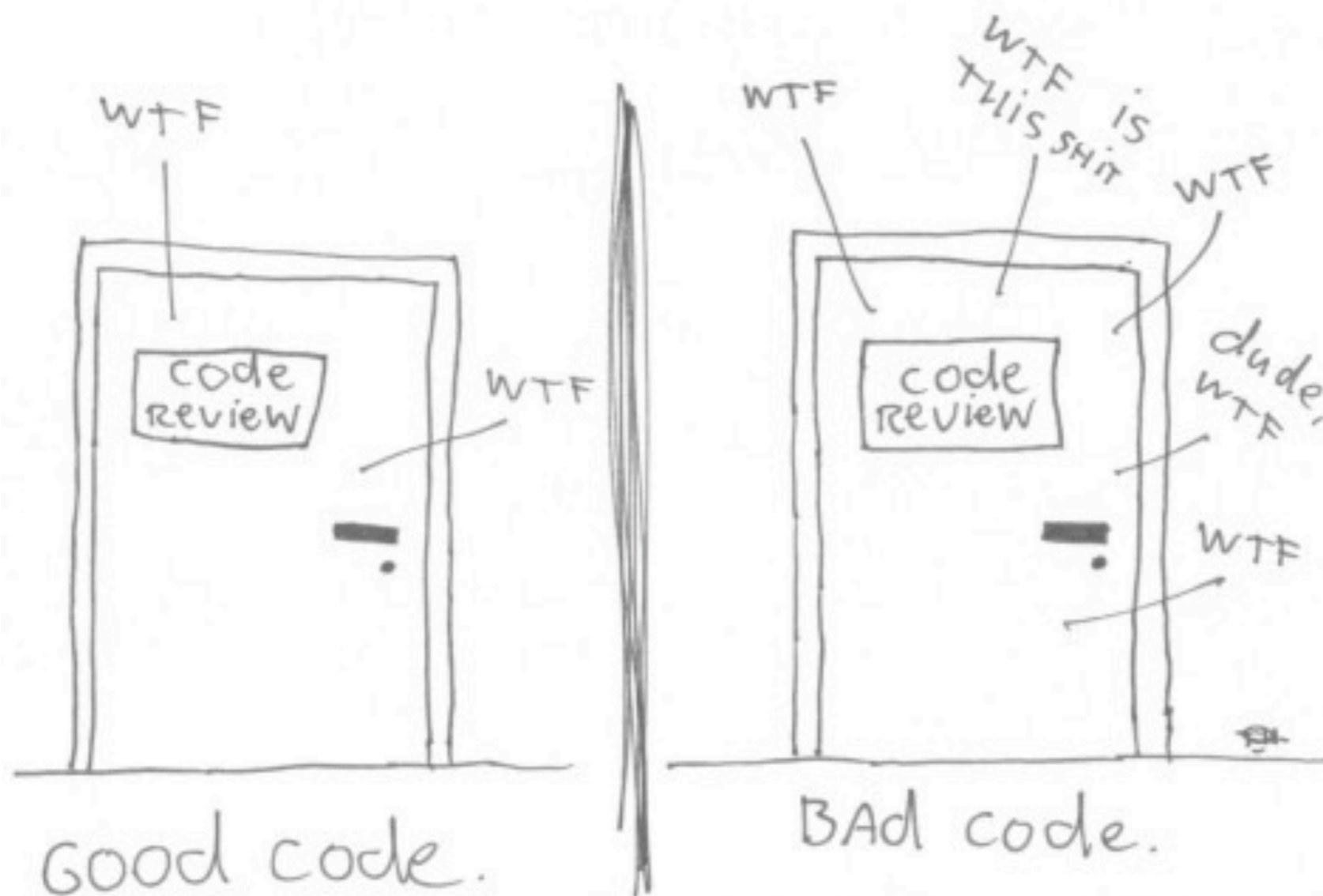
Lines of Code (hrm...)

Time it took to develop (hrm... hrm...)

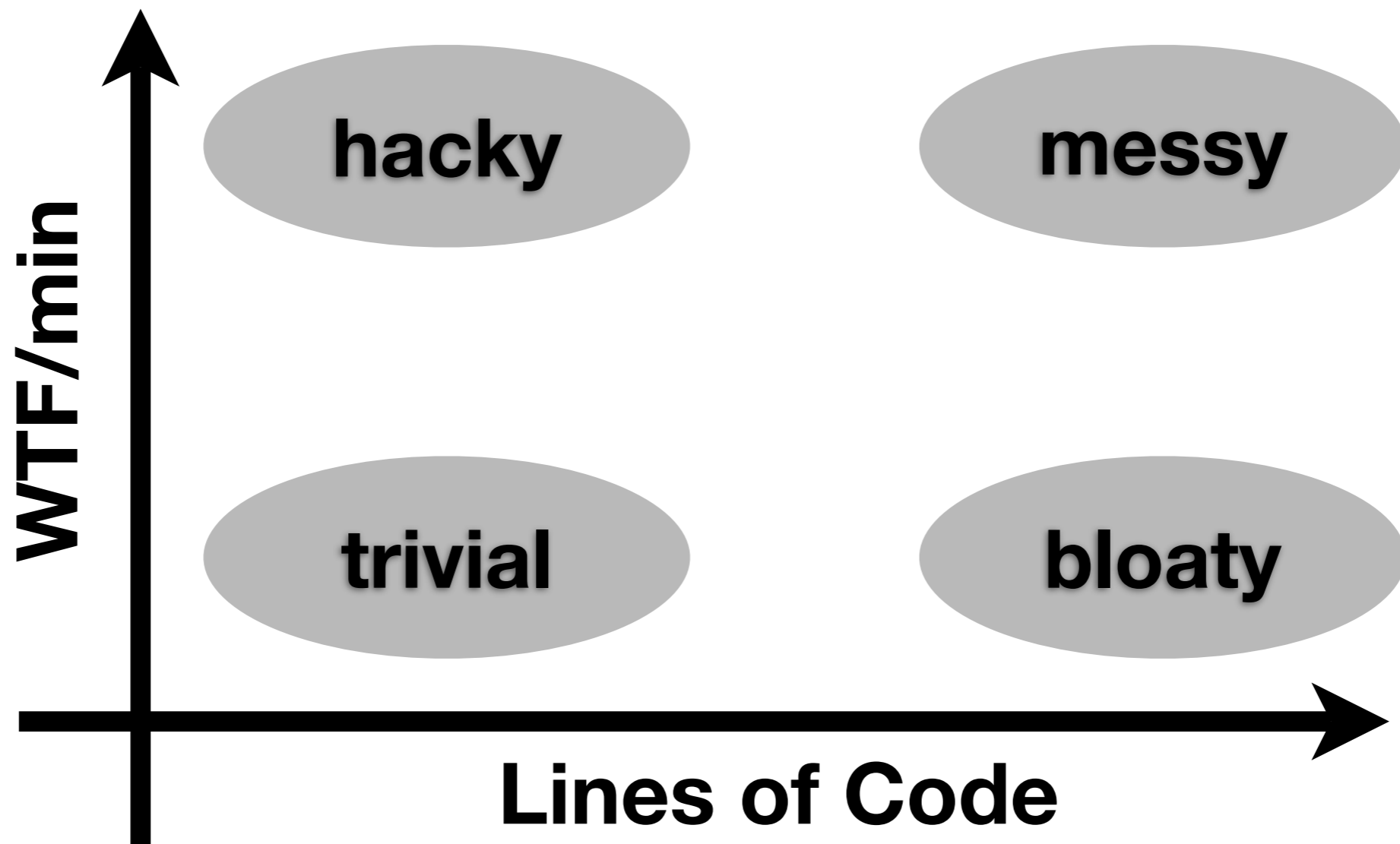
Amount of programmers

WTF/Minute

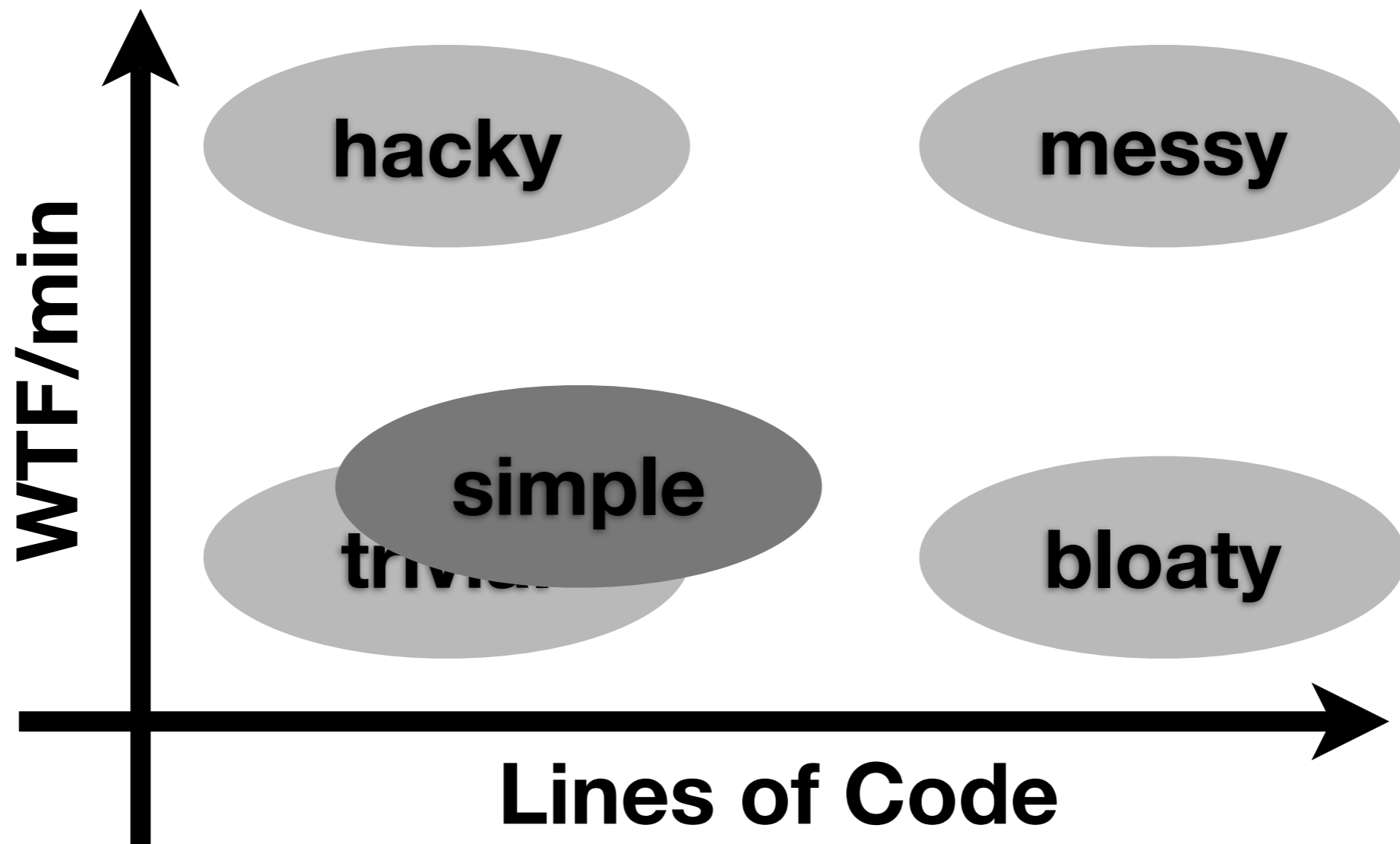
The ONLY VALID MEASUREMENT
OF CODE QUALITY: WTFs/MINUTE



A diagram



The sweet spot



Everyone knows that debugging is twice as hard as writing a program in the first place. So if you're as clever as you can be when you write it, how will you ever debug it?

**—Brian Kernighan,
The Elements of Programming Style**

Achieving simplicity

Avoid magic! Magic is never simple.

**Find appropriate abstractions/
generalizations**

**Avoid over-design/over-generalization/
do-everythings**

**Modularize. Reuse. Use simple, flexible
interfaces.**

Discover. Follow.

Achieving simplicity

KISS. YAGNI. DRY?

```
- %w[before after].each do |block_type|
-   (instance_variable_get("@#{block_type}") || []).each { |b|
-     context.send(block_type, &b)
-   }
- end
+ @before.each { |b| context.before(&b) }
+ @after.each { |b| context.after(&b) }
```

```
def get; req.get?; end
def post; req.post?; end
def put; req.put?; end
def delete; req.delete?; end
```

PITAs, run if you can

backward compatibility

i18n, L10n

GUIs

selfmade parsers for config files

other users

Wabi-Sabi

Wabi-Sabi is the quintessential Japanese aesthetic. It is a beauty of things imperfect, impermanent, and incomplete. It is a beauty of things modest and humble. It is a beauty of things unconventional...

— <http://www.c2.com/cgi/wiki?WabiSabi>

Applied Wabi-Sabi

Accept edge cases

Worse is better

**It's not worth to be correct all the time,
esp. if its easy to see *when* not.**

**Don't fear rewrites, no code is
permanent**

Towards mastery

Know thy tools; use thy tools; do not work against the tools

Pet peeves: dæmonization, output coloring (use external tools!)

Keep things hackable; don't fear radical solutions

Mastering these rules is *hard*.

Why simple code?

Faster development, faster to the finish

Focus on what matters

**More efficient solutions; more security;
tools that work better**

More elegance, better, easier to extend

More beauty? More fun.

Examples

**Operating
systems:**

Multics \rightsquigarrow **Unix** \rightsquigarrow **Plan 9**

Marshalling: **XML** \rightsquigarrow **YAML** \rightsquigarrow **JSON**

My examples

Nukumi1 \rightsquigarrow **Nukumi2** \rightsquigarrow **Trivium**

~1000 LoC

~1300 LoC

59 LoC

XSLT

Ruby

Ruby

Ruby

**a terrible
overdesigned
mess**

**a terrible
mess**

**simple &
beautiful**

My examples

CGI \rightsquigarrow **WSGI** \rightsquigarrow **Rack**

RSpec \rightsquigarrow **test/spec** \rightsquigarrow **bacon**

~650 LoC **~300 LoC**

**more general
than test/spec**

My examples

CGI \rightsquigarrow **WSGI** \rightsquigarrow **Rack**

RSpec \rightsquigarrow **test/spec** \rightsquigarrow **bacon** \rightsquigarrow **Knock?**
~650 LoC ~300 LoC ~80 LoC
more general
than test/spec

Resources

Bell Labs (Research Unix, Plan 9)

D. J. Bernstein (<http://cr.yp.to/>)

Chuck Moore (ColorForth etc.)

<http://suckless.org/>

John Maeda (<http://lawsofsimplicity.com/>)

Math helps

***The Master doesn't try to be powerful;
thus he is truly powerful.***

***The ordinary man keeps reaching for power;
thus he never has enough.***

***The Master does nothing,
yet he leaves nothing undone.***

***The ordinary man is always doing things,
yet many more are left to be done.***

—Lao Tzu, Tao Te Ching, Chapter 38

Questions?

Thank you.

Thanks to: Alexander Kellett, Linus Sellberg, Dominik Honnef, Pistos Christou, and Aria Stewart for reviewing the slides.

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