UiT

THE ARCTIC
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The pragmatic R programmer

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UNIVERSITY
OF TROMSØ

The Pragmatic Programmer

from journeyman
to master

Andrew Hunt
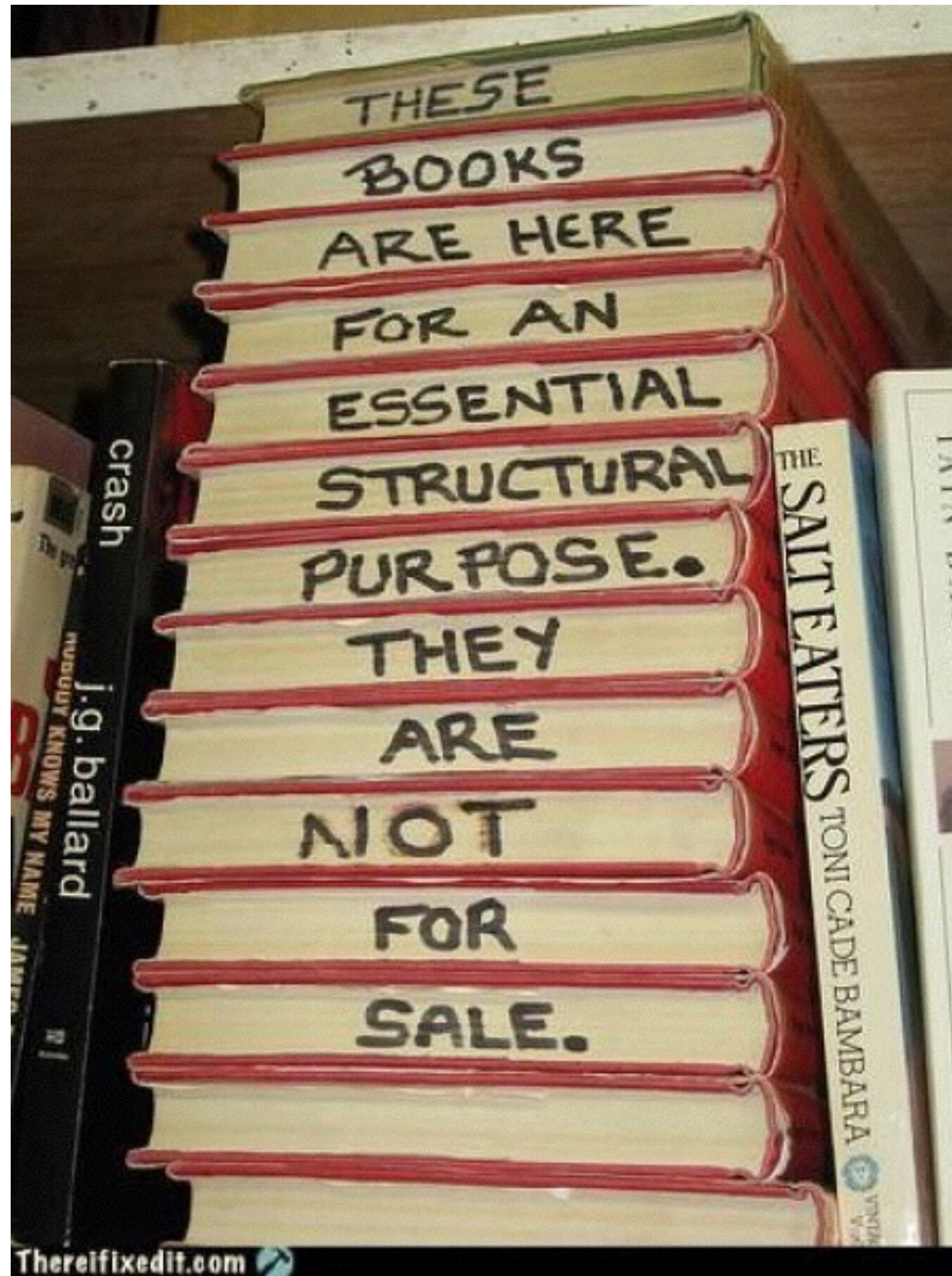## David Thomas

Foreword by Ward Cunningham

Outline/take-home messages

- (4) Don't live with broken windows, and (44) don't program by coincidence

- (11) **Don't repeat yourself**

- (12) **Make it easy to reuse**

- (68) Build documentation in, don't bolt it on

One broken window, left unrepaired for any substantial length of time, instills in the inhabitants of the building a sense of abandonment—a sense that the powers that be don't care about the building.

–The Pragmatic Programmer

Programming by coincidence

Don't repeat yourself: two sources of repetiton

- **Impatient duplication:** I need something similar to what I did earlier

- **Inter-developer duplication:** I don't know that you already did this

Two sources of repetition

DO SOME FUNCTIONS

- **Inter-developer duplication:** I don't know that you already did this

Two sources of repetition

DO SOME FUNCTIONS PACKAGE THEM, MAKE THEM AVAILABLE

Demo: Functions as the unit of repetition

When to start writing an R package

As soon as you have 2 functions.

https://github.com/jtleek/rpackages

Demo: Your first tiny package

http://xkcd.com/1742/

[…] a link to a software library or package that implements the method—with complete documentation and ideally on a curated repository like CRAN or Bioconductor—can raise the impact of a paper substantially.

–Jeff Leek and Dimitris Rizopoulos, co-editors of Biostatistics

https://medium.com/@biostatistics/what-makes-a-good-applied-methods-paper-8130f2e24f2a

Demo: document your package, put it on GitHub

GitHub is good for in-development packages. Mature packages should go to CRAN or Bioconductor

Packages for packages

```r
library(devtools)
library(roxygen2)

# important but not demo'd:
library(testthat)
library(knitr)
```

Take-home messages again

- (4) Don't live with broken windows, and (44) don't program by coincidence

- (11) **Don't repeat yourself**

- (12) **Make it easy to reuse**

- (68) Build documentation in, don't bolt it on

References + links

- The Pragmatic Programmer by Andrew Hunt and David Thomas

- Hilary Parker's nice & accurate tutorial to writing an R package (v. easy to start with): https://hilaryparker.com/2014/04/29/writing-an-r-package-from-scratch/

- Hadley Wickham's v. thorough guide to R packages: http://r-pkgs.had.co.nz/

- See especially the documentation bit: http://r-pkgs.had.co.nz/man.html

- Hadley Wickham's v. thorough guide to advanced R: http://adv-r.had.co.nz/

- Karl Broman's steps toward reproducible research: http://kbroman.org/steps2rr/

- How to be a Modern Scientist by Jeff Leek: https://leanpub.com/modernscientist

References + links

References + links

References + links

November 11

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G   Search

Visited Basic text string functions in R | R-bloggers

12:04 PM · Details

G   Search

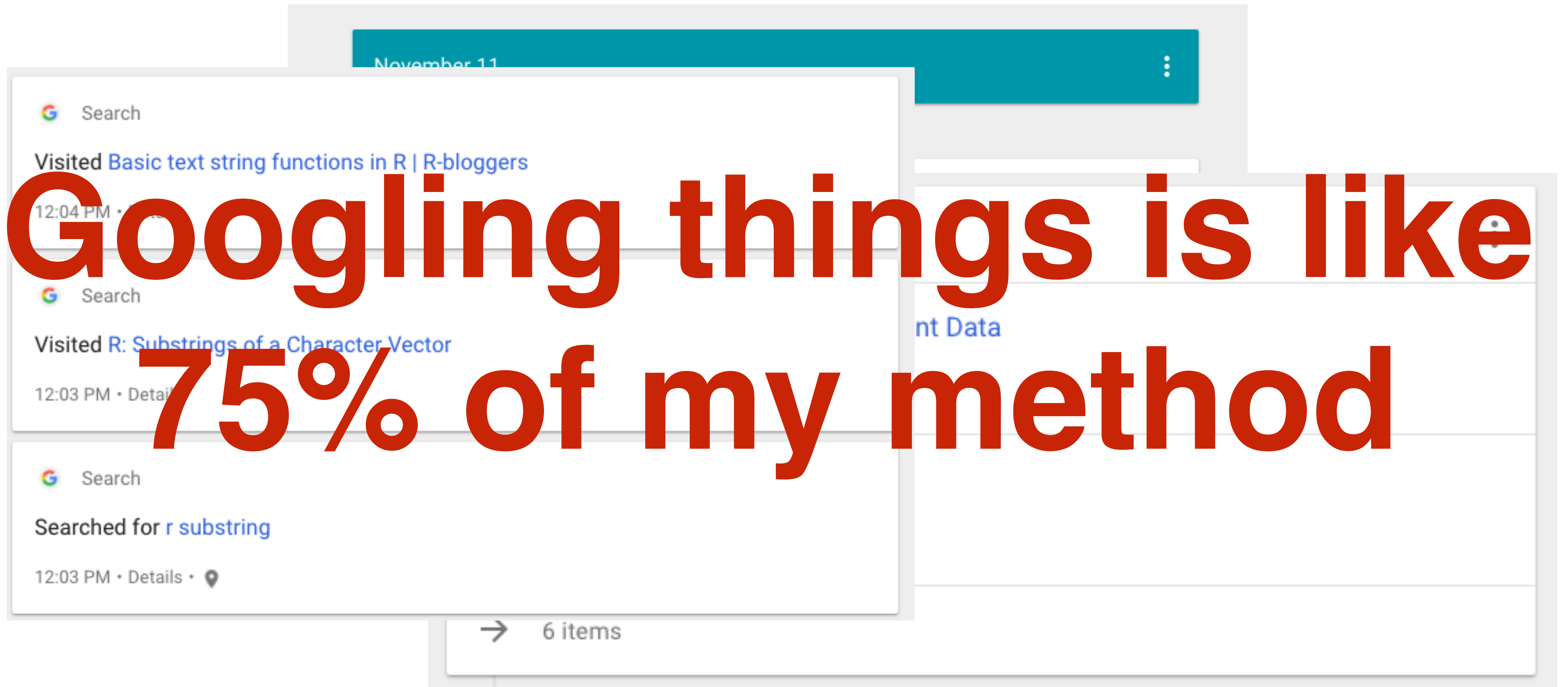Visited R: Substrings of a Character Vector

12:03 PM · Details

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Searched for r substring

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References + links

Googling things is like 75% of my method

Further study

- Do literate programming with knitr: write your analysis as a reproducible report http://kbroman.org/knitr_knutshell/.

- Start working on your personal R package: https://hilaryparker.com/2013/04/03/personal-r-packages/

- Remember to put it on github!!! (Here's mine https://github.com/3inar/einr)

- Remember to document all functions!!!

- Google things

- Fix broken windows

- Email me (next slide) about joining the #r_users channel on our slack

- Write some tests for your package: http://r-pkgs.had.co.nz/tests.html

Thank you!

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Slides available at
3inar.github.io/talks/