

# Opening The Black Box

**Howdy!**  
**I'm an engineer at**  
**Four Kitchens**

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**DrupalCamp CT 2014**

**DrupalCamp CT 2016 (morning)**

**DrupalCamp CT 2016 (afternoon)**

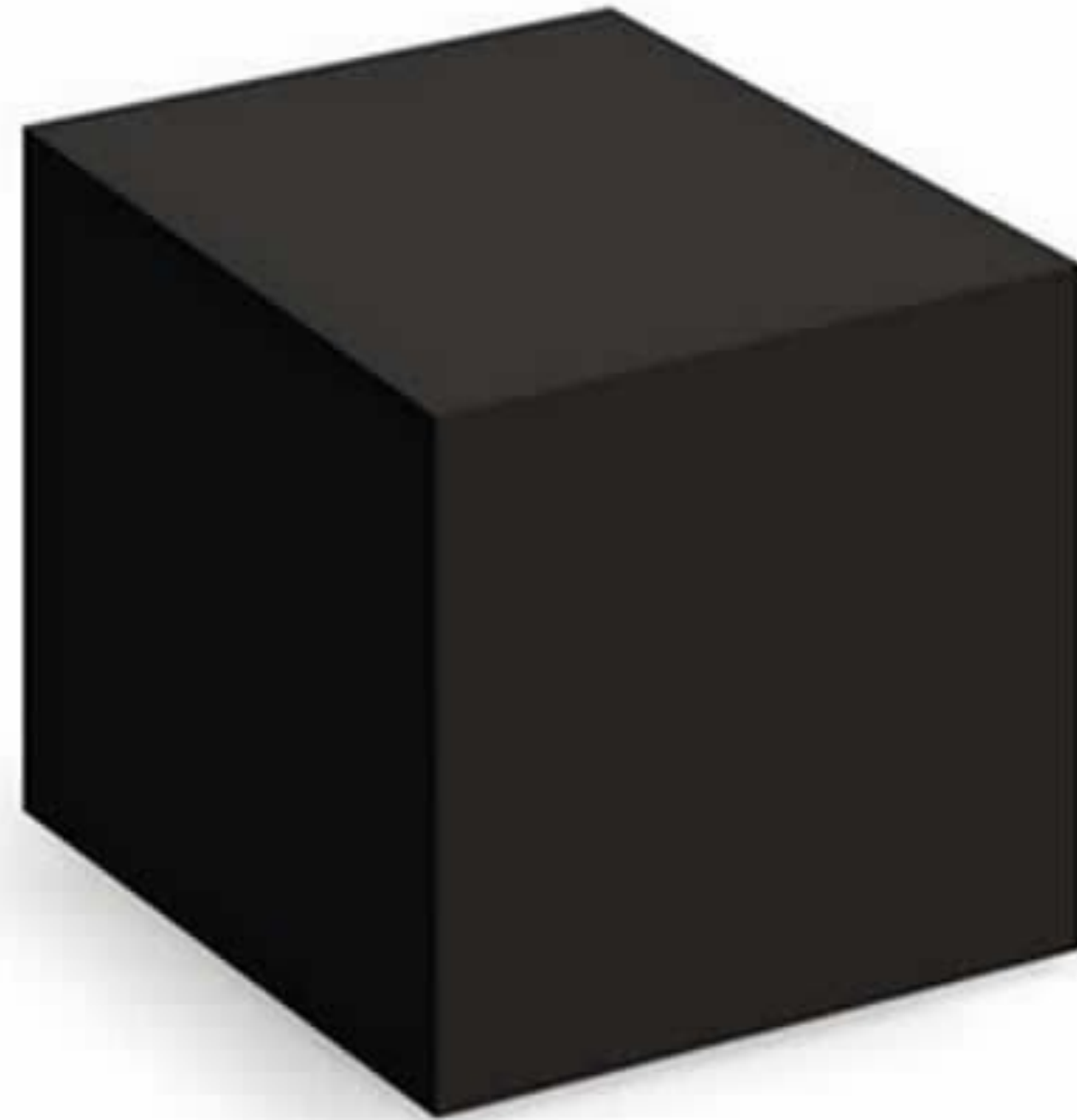
**I guess I'm an Ivy League  
assistant professor now?**

# What Is The Black Box?

# A Familiar Story?

- Non-technical education
- Self taught web skills
- Above average Googling abilities
- Late nights staring at error messages

# Mental Model of Drupal





# Mental Model of Drupal





# Mental Model of Drupal

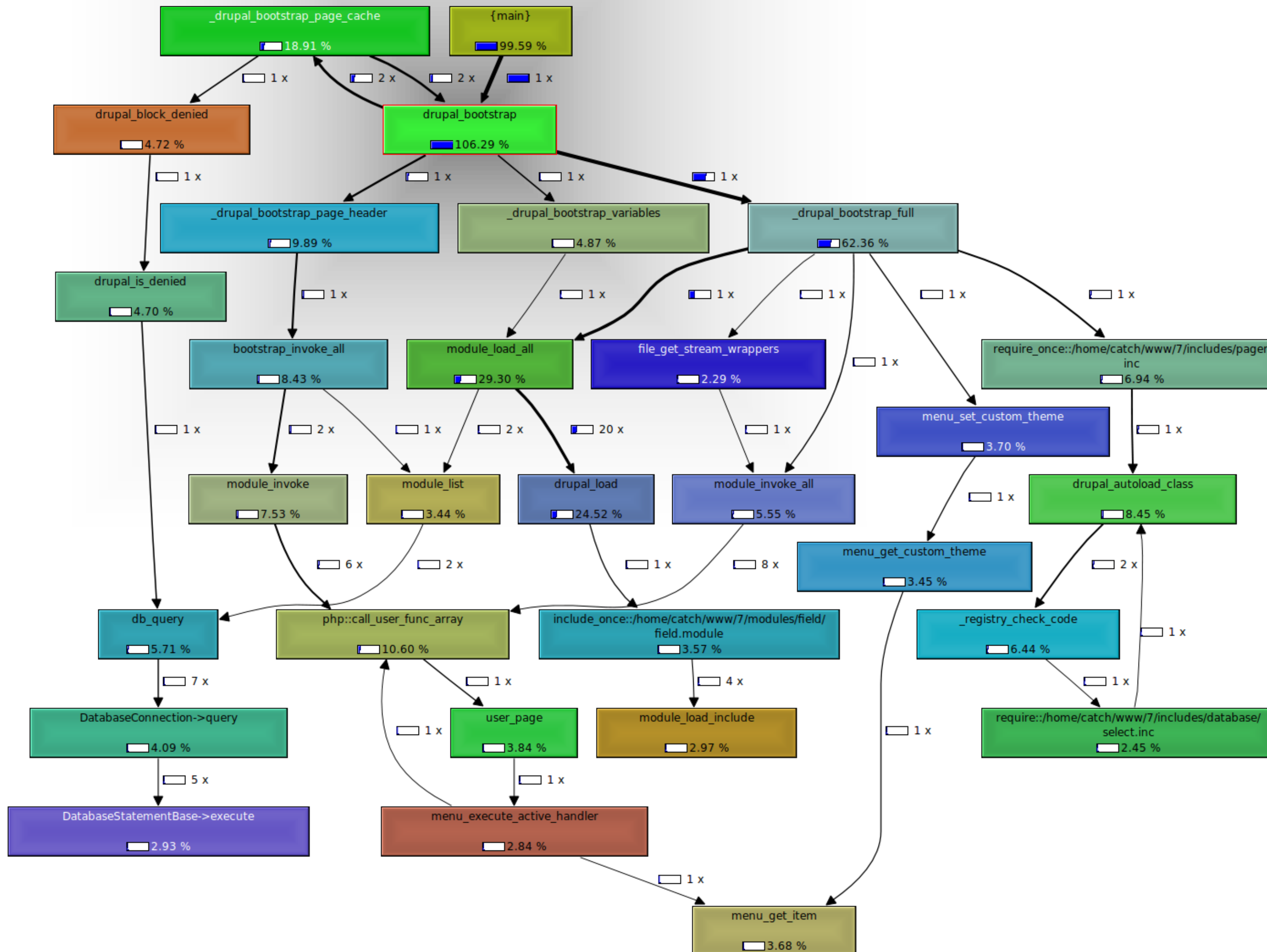




# Mental Model of Drupal



# Mental Model of Drupal



Start At The Beginning



# Text Editors

- “Text Editors”
- Text Editors
- IDEs

# “Text Editors”

- Text Edit (Mac)
- Notepad (Windows)
- Nano (Linux / Mac)

# Text Editors

- Notepad++ (Windows)
- vim (Mac / Linux)
- Dreamweaver (Mac / Windows)
- Sublime Text (Mac / Linux / Windows)
- Atom (Mac / Linux / Windows)



# Integrated Development Environments

- PHPStorm (Mac / Linux / Windows)
- Eclipse (Mac / Linux / Windows)
- Komodo (Mac / Linux / Windows)

# Development Environments

- On your server
- On your machine
- On your machine, but it acts like the server

# Development Environments

- FTP Development
  - “Cowboy coding”
- Local Environments
  - MAMP / LAMP / Vagrant
- Next generation
  - Kalabox



# FTP Development

- FTP Development
  - “Cowboy coding”
  - No version control up front
  - Little debugging visibility
    - Log files (maybe), debug statements
    - Watchdog logs (maybe)

# Debug Statements in Code

- `print_r()`
  - Raw dump of a variable or context, no formatting
- `print_r($node);`
  - `<pre><?php print_r($node); ?></pre>`
- `dsm()`
  - Formatted dump of a variable or context
- `dsm($node);`

# Local Development

- MAMP / Dev Desktop / Native LAMP
  - Code runs entirely locally
  - Added bonus of offline work, no internet required
- `print_r()`, `dsm()`, but also more
- `xdebug`



# Local Development: The Next Generation

- Kalabox with Pantheon / Acquia integration
- Custom Vagrant boxes (DrupalVM)
- `print_r()`, `dsm()`, `xdebug`
- Very accurate performance profiling
- XHProf

# Something Is Broken!



Relax.



# Remember Cobble's Knot



# What's Broken?

- Is something not showing up?
  - New content - is it published?
  - Old content - are permissions set properly?
- Is something showing up that shouldn't?
  - Raw HTML and Javascript in a WYSIWYG field?

# Work From The Bottom Up

- Log Files
  - You should learn how to find your log files before you need your log files
- multitail
  - Linux / Mac utility to easily view logs with more options than tail

# Where Is It Broken?

- Custom Module
- Theme `template.php`
- Theme Template





# The Scientific Method

# Finally, Debugging

- Change **one** thing at a time
- Test that change
- Repeat

# git Is Your Friend

- Save your progress as you work
  - Recreate your Features
- Makes rabbit holes manageable

# git diff Is Your Friend

- Remove your debug statements
- Ensure you only changed as much as you needed to change
- You only commit `dsm('Butts');` to master **once**



# git blame Finds Your Enemies



# git blame Finds Your Enemies



# git blame Is Your Friend

- Can help you track down who wrote the offending code
  - This ***should not*** be a witch hunt
  - This ***should*** be a chance to find context for the issue

Make The Future Easier



# Proactive Debugging

- watchdog() (D7)
- \Drupal::logger() (D8)
- syslog Module
  - <http://loggly.com>
  - <https://www.elastic.co/blog/hey-elasticsearch-stack-and-x-pack>
- Write a test!
  - Simpletest
  - Behat

**@milsyobtaf**



# Thank you!



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