## New features, testing and refactoring joshua

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#### Food for discussion

"Don't leave "broken windows" (bad designs, wrong decisions, or poor code) unrepaired. Fix each one as soon as it is discovered. If there is insufficient time to fix it properly, then board it up. Perhaps you can comment out the offending code, or display a "Not Implemented" message, or substitute dummy data instead. Take some action to prevent further damage and to show that you're on top of the situation. " – Andy Hunt and Dave Thomas

(From 'The Pragmatic Programmer')

#### New features

- Project start : Matt is implementing Lattice
   (Batch) Mira in Joshua
- Showed were to implement new features in Joshua
- Went ahead and implemented one
- Simple binary feature firing for specific combination of labels

#### Rule:

[:+NP+CC] ||| [:,1] 전 [NNS,2] ଓ ||| [:,1] eastern [NNS,2] and Firing binary feature:

=> labelCombinationFeature\_:+NP+CC\_:\_NNS

#### New features

 Hey, this is easy, let's implement a whole lot of features!



#### Eeuh yes, very good, but does it actually work?

## Feature Functions Test : Motivation

- Feature function appllied? Total weight must change!
- Manual testing many features = tedious + buggy
  - Solution : automated testing

## Feature Functions Test : Tools and approach

- JUnit
- Rerouting input/output
- Run1: Extract list new features + weights decoder output
- Re-run2: New features specified in config
- Test check : weight pairs have different weights over both runs

#### **Feature Functions Test**

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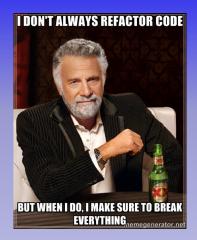
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# Challenges encountered along the way

- Globally shared configuration object: problems multiple consecutive decoder runs
- First attempt: reset methods
- But : how does user know/expect reset method must be called, and where?
  - $\Rightarrow$  fix in a lame way
  - In fact: empirical evidence global variables are evil

#### Refactoring to the rescue



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#### Refactoring to the rescue

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	: Refactored the JoshuaConfiguration. Made it into a non-stati , that is	Browse code
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#### Conclusions

- Started implementation new sparse features
- Generic test shows: do features actually fire and change weight?
  - Big refactoring enables more effective testing with eclipse
  - Foundation smooth implementation more features
    - Combination with Lattice (Batch) Mira : awesomeness!