Software Comprehension Across Levels of Abstraction

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My students are not keen on reading any of the two.

[Inspired by Andrea Caracciolo]
Tools for software understanding!
Softwarenaut

interactive exploration of software

We need tools that reveal the system structure

http://scg.unibe.ch/softwarenaut
Local changes can have large impact on the ecosystem.

How do developers react to API deprecation?

Lungu, Robbes, Roethlisberger. FSE 2012
Software Ecosystems

Local changes can have large impact on the ecosystem.

Challenge
- increasing the awareness of the ecosystem evolution.

_How do developers react to API deprecation?_
Lungu, Robbes, Roethlisberger. FSE 2012
Ecosystems Workshop

- Empirical studies
- Case studies
- Tools

There will be a deadline extension!

http://wea.github.io
Besides tools for understanding ugly code, let us write beautiful code.
Mantra
“I write code for people”

Telepathy < Writing < Programming

Stephen King
On Writing
Höchsgeschwindigkeitsbegrenzung
pd := new PageDownloader(url);

pd.downloadAndSaveTo(url, aFileDirectory);

pd := PageDownloader withUrl: url.

pd downloadAndSaveTo: aFileDIRECTORY.
<identifier> ::=<letter> | <identifier> [ _ | - | <letter> | <digit> ]
people_that_use_underscore
people-that-use-racket
Fluent interfaces
AppleScript
The cucumber framework
My colleague Jan Kurs

IDonTNEcessarilyLikeCamelcase
AndIAmNotAlone
view

set node block: [];
set edge block: [];

people_that_use_underscore
people-that-use-racket
Fluent interfaces (e.g.)
AppleScript
The cucumber framework
My colleague Jan Kurs
Methods Are Actions Performed By Objects
Method names should be sentences describing actions, instead of identifiers.
anObjectIdentifier aMessageIdentifier.

an object name, an action sentence.
anObjectIdentifier aMessageIdentifier.

an object name, an action sentence.

...pd := Page Downloader, with url: data url.
pd, download and save to: the data folder.
...
“Alfred, get me a satellite picture” vs. Get me a satellite picture, Alfred.

Polite Hero, create a bunch. Create a bunch of: Polite Hero.

Changing the message send syntax we can allow more creativity.
- experiments with syntax
- changing the compiler on a per-class basis
- using PEGs and parser combinators in

Eventually almost all the grammar rewritten
Tools
- must work across levels of abstraction
- learn from the ecosystem

Polite Future
- full IDE integration
- empirical studies

http://mir.lu