

Meeting 12: Operational Semantics

AN x64 PROCESSOR IS SCREAMING ALONG AT BILLIONS OF CYCLES PER SECOND TO RUN THE XNU KERNEL, WHICH IS FRANTICALLY WORKING THROUGH ALL THE POSIX-SPECIFIED ABSTRACTION TO CREATE THE DARWIN SYSTEM UNDERLYING OS X, WHICH IN TURN IS STRAINING ITSELF TO RUN FIREFOX AND ITS GECKO RENDERER, WHICH CREATES A FLASH OBJECT WHICH RENDERS DOZENS OF VIDEO FRAMES EVERY SECOND

BECAUSE I WANTED TO SEE A CAT JUMP INTO A BOX AND FALL OVER.



I AM A GOD.

Today

- Your questions on Lab 3
- Operational semantics
- Evaluation order, short-circuiting and dynamic scoping

Announcements

- Lab 3 out and due Fri 9/30 to Sat 10/1.
- Lab 3 in-class exercise, Tue 10/4
- Moodle Midterm Review exercise, due Mon 10/3 to Tue 10/4 at 6pm
- Midterm, Thu 10/6
 - No interviews or labs out during midterm week.
 - Lab 3 interviews starts Fri 10/7 to the following week of 10/10
 - Allowed: 1 side of letter-sized paper (8.5"x11") handwritten "crib sheet" created by you
- Prof. Chang is traveling next week Tue 10/4 and Thu 10/6. Conduct class by video on Tue 10/4.

Lab 2 Interviews

Reminder: to help you understand what you understand and don't understand for the midterm. If you didn't do well, please come see us.

Lab 3 builds on Lab 2 (and Lab 4 builds on Lab 3), so keep working at it. Even if you miss submission (for your group), keep working at it.

Questions

- ① substitute for call function ✓
- ② propagate
- ③ jsy test — TDD with Lab3Spec
- ④ dynamic scoping
- ⑤ debugging ✓

const $x = 1$; $\leftarrow [x \mapsto 1]$
 const $g = (y) \Rightarrow x$; $\leftarrow [x \mapsto 1, g \mapsto (y) \Rightarrow x]$
 const $h = (x) \Rightarrow g(2)$; $\leftarrow [x \mapsto 1, g \mapsto (y) \Rightarrow x, h \mapsto (x) \Rightarrow g(2)]$

$h(3)$

static scoping 1

dynamic scoping 3

$(E_0 \vdash \square) \Downarrow \square$

$[x \mapsto 1, g \mapsto (y) \Rightarrow x, h \mapsto (x) \Rightarrow g(2)] \vdash h(3) \Downarrow \square$ ^{Env} _{call}