Meeting 22 -Encapsulating Effects

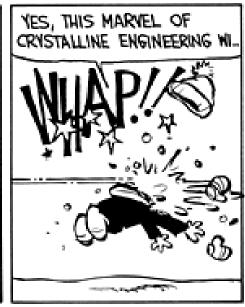
Bor-Yuh Evan Chang

Thursday, November 7, 2024

Meeting 22 -Encapsulating Effects









What questions does your neighbor have?

Links

- ☐ Book Chapter

Announcements

- Remainder of the Semester
 - HW 5 and Lab 5 before Thanksgiving break
 - Unit 6 (probably one combined assignment) after Thanksgiving break
 - Exam 5-6 in the last week of classes before the Final
 - Possible extra credit project opportunity
- Exam 3-4 grading in progress
 - See how the Review Exercises/Practice Exam translates to the exam.
 - Some questions were even exactly the same (1e on giving the small-step rules for const x = e1; e2)
- Come see us to make a study plan
 - e.g., via the redo policy
 - see the Final Exam as an opportunity to show growth from mid-semester exams.
 - 25 minutes per unit x 6 units = 150 minutes

Today

- Encapsulating Effects
- Triage Your Questions
 - Exam 3-4

Questions?

- Review:
 - What is soundness (or unsoundness) of static typing?

Questions?

Error Effects

Exceptions

```
defined function toDoubleException
res0_1: Double = 1.0
res0_2: Double = 4.2
```

Option

defined function toDoubleOption
defined function toDoubleNoNaNOption

Option as a Collection

defined function toDoubleNoNaNOption
defined function addToDoubleOption

Map, Filter, FlatMap

Exercise 1 Implement map for Option [A]s:

defined function map

Exercise 2 Implement filter for Option [A] s:

defined function filter

Exercise 3 Implement flatMap for Option [A]s:

defined function flatMap

Comprehensions

defined function addToDoubleOption

Either and Try

```
defined function toDoubleEither
defined function addToDoubleEither
import scala.util.Try
defined function toDoubleTry
defined function addToDoubleTry
```

Mutation Effects

defined function freshVarImperative
defined function freshVar

Encapsulating Mutation Effects

counter: Int = 0

```
defined type DoWith
res25: Int => (Int, String) = ammonite.$sess.cmd22$Helper$$Lambda$2244/0x0000000
defined function map
defined function flatMap
```

DoWith

```
defined class DoWith
defined object DoWith
import DoWith._
defined function freshVar
counter: Int = 0
```