Learning Idris

a programming language which is like Haskell but more so

more precisely, a pure functional language

that enables 'type driven development'

Summary

- Why learn another language?

- What can I write in it?

Why learn yet another language?

- Inspired by "7 Languages in 7 Weeks"

- Learning a new language should not be hard

- It almost always makes you a better developer

- There are some interesting new languages out there

What can I write in it?

- Bewl is my DSL for topos theory, a math-heavy project which I already ported from Java / Clojure to Scala

- Java's type system became too limiting

- Clojure's macros were great but I missed the strong typing

- Scala was a perfect fit.

- But, I use pretty much every inch of the playing surface (fancy features of the language)

- What else might be possible?

Why Idris?

- I considered Haskell, but Idris was too tempting as a cutting-edge extension

- It has dependent types (very useful in Scala)

- Types are first class citizens. You can have functions returning types, and 'type providers' (as in Microsoft's F#)

- "Type driven development" sounds fun

- Also Idris has a proof checker built in, which even supports topos logic.

Like Haskell but more so

- Uncompromisingly functional

- You have to know all about metamonoidal preprofunctors (only not really)

- There are "plumbing" operators like <*>, |+|, >>= which it's best not to pronounce at all

- Layout is like Python - non-free-form, indentation is significant

- Keeps punctuation to a minimum.
  Code can be lean and expressive (even cryptic)

Like Haskell but more so (2)

- Not very mainstream

- Idris is the work of 1 person, Edwin Brady, a lecturer in Comp.Sci at St Andrews U

- He's not even working on it full time

- The documentation, tools and libraries are... not bad, considering

- Maybe not first choice for production systems

Like Haskell but more so (3)

- Can you actually write Idris programs that do anything?

- Yes. Edwin Brady wrote a Space Invaders game in Idris

- It uses "Effects" (to do stateful things in a functionally pure way) and a 3rd party graphics library

- It took me most of a weekend to get this to build

How do you learn a language?

- For Scala, I test-drove my exploration of language features

- The result: github.com/fdilke/scala-exp which is at least a body of code to cut and paste from

- For Idris, this is daunting

- Brady's book helps

- Also there is http://exercism.io (tutorials for almost any programming language) which shows how to set up a project

My First Idris Program

- Let's find all 3x3 acrostics

NTB a square of nine letters
OOA only with each row and column a word

TOD