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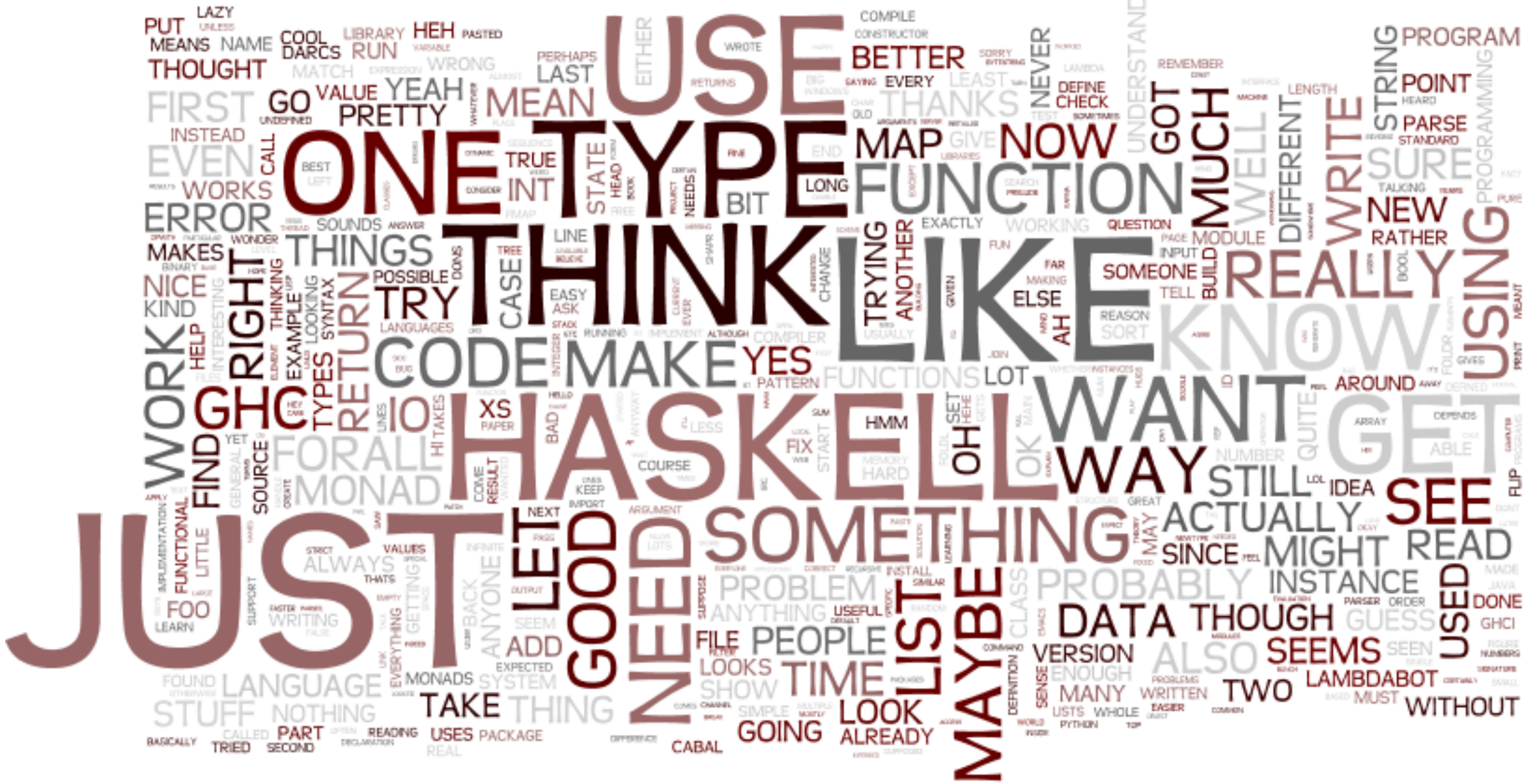

Real World Haskell SoSe 2013
Julian Fleischer, Alexander Steen

Freie Universität Berlin

1: Introduction

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```haskell
import System.IO
import Control.Monad
import Text.Printf
import Network



main = do
  socket <- listenOn (PortNumber 8080)
  forever (serve socket)

serve socket = do
  (sock, host, _) <- accept socket


  let send = hPutStr sock
      text = "<h1>Hooray, Haskell</h1>"

  send $ printf "HTTP/1.1 200 OK\r\nContent-Length: %d\r\n\r\n%s"
                (length text) text

  hFlush sock
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  printf "Anfrage von %s beantwortet\n" host
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```haskell
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import Control.Exception


main = do
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```haskell
import System.Environment
import System.IO
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import Text.Printf
import Network
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main = listenOn (PortNumber 8080) >>= forever . serve


serve socket = handle (\e -> print (e :: SomeException)) $ do
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```haskell
import System.Environment (getArgs)
import System.IO (hFlush, hClose)
import Control.Monad (forever)
import Text.Printf (hPrintf, printf)
import Network (listenOn, accept, Socket, PortID (..))
import Control.Exception (handle, finally, SomeException)
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main :: IO ()
main = listenOn (PortNumber 8080) >>= forever . serve

serve :: Socket -> IO ()
serve socket = handle (\e -> print (e :: SomeException)) $ do
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import Control.Exception (handle, finally)
import Control.Concurrent (forkIO)
import System.Environment (getArgs)

main :: IO ()
main = getArgs >>= return . read . (!! 0)
               >>= listenOn . PortNumber . fromIntegral
               >>= forever . serve

serve :: Socket -> IO ()
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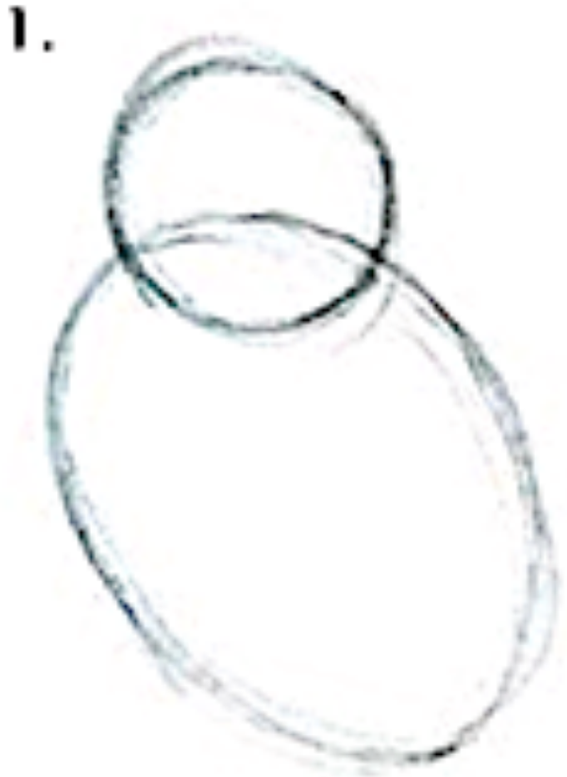
How to draw an owl



Draw some circles

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main :: IO ()

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```haskell
{-# LANGUAGE Haskell2010 #-}

-- | Mein erstes echtes Haskell Programm
module Main where

import System.Environment
import System.IO

-- | Die main-Funktion ist die erste Funktion die aufgerufen wird
main :: IO ()
main = putStrLn "Hooray, Haskell!"

{- oder: main = getLine >>= putStrLn

   oder: main = do
           putStr "Your Name: "
           line <- getLine
           putStrLn $ "It is " ++ line -}
```

cabal

```
$ cabal init
> Package name? [default: ...] fu-haskell-webserver
> Package version? [default: 0.1.0.0] 1.0
> Please choose a license:
  ...
> Your choice [default: (none)]: <ENTER>
> Author name? Julian Fleischer
> Maintainer email? julian.fleischer@fu-berlin.de
> Project homepage URL? <ENTER>
> Project synopsis? My first cabal package
> Project category?
  ...
> Your choice [default: (none)]: <ENTER>
> What does the package build:
>   1) Library
>   2) Executable
> Your choice? 2
  ...
```

cabal (2)

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```
$ <EDIT> fu-haskell-webserver.cabal

executable fu-haskell-webserver
    -- main-is:
    -- other-modules:
    build-depends:       base ==4.5.*, network ==2.3.*
```



```
executable fu-haskell-webserver
    main-is: webserver.hs
    -- other-modules:
    build-depends:       base ==4.5.*, network ==2.3.*
```

cabal (3)

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```
$ cabal configure
Resolving dependencies...
Configuring fu-haskell-webserver-1.0...
...

$ cabal build
Building fu-haskell-webserver-1.0...
Preprocessing executable 'fu-haskell-webserver' for
fu-haskell-webserver-1.0...
[1 of 1] Compiling Main             ( ... )
Linking dist/build/fu-haskell-webserver/fu-haskell-webserver ...

$ ./dist/build/fu-haskell-webserver/fu-haskell-webserver
...

( $ cabal install )
```

runhaskell

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```
$ runhaskell webserver.hs
...
```

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1.

2.

Draw the rest of the fucking owl !

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Appendix

- Search-Engine for function signatures
  http://www.haskell.org/hoogle
- The Haskell Platform ("Library Doc")
  http://www.haskell.org/platform/

Appendix (2)

```
main   :: IO ( )

(>>=)  :: IO a → (b → IO b)

(>>)   :: IO a → (IO b → IO b)
```

```
System.Environment (getArgs)

getArgs :: IO [String]
```

Appendix (3)

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```
do
   a <- f x1 x2 x3
   f2 a
```

```
f x1 x2 x3 >>= (\a -> f2 a)
```

Appendix (4)

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```
do
   doSomething
   doSomethingElse
```

```
doSomething >> doSomethingElse
```

Appendix (5)

```
id :: a → a
id x = x                ⇔    id = \x -> x

return :: a → M a
return x = M x          ⇔    return = M

(.) :: (b → c) → (a → b) → (a → c)
(.) f g x = f (g x)
                        ⇔  f . g = \x -> f (g x)
```