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Why Haskell

Engineers
Management
Company

DMITRY DOLGOV

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- ➔ For developers
- ➔ For management
- ➔ For company

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Developers

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Compiler support

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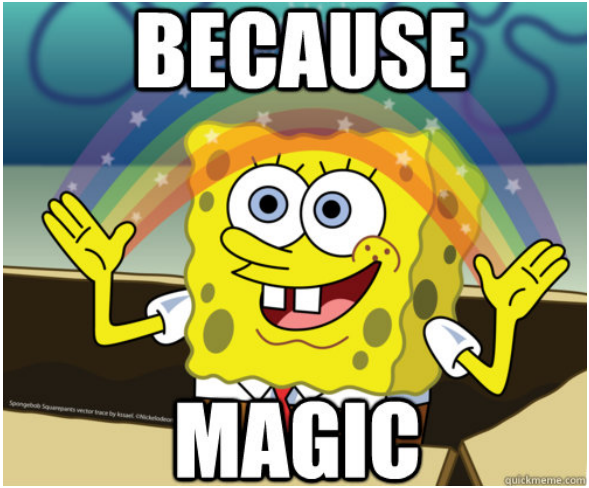
Advanced type system



```haskell
data USD
data EUR

newtype Currency a = Currency Double deriving Show

add :: Currency a → Currency a → Currency a
add (Currency a) (Currency b) = Currency $ a + b
```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```haskell
account :: Currency USD
account = Currency 5.0

transaction1 :: Currency USD
transaction1 = Currency 5.0

transaction2 :: Currency EUR
transaction2 = Currency 5.0

main = do
    print $ add account transaction1 -- Currency 10.0
    print $ add account transaction2 -- won't compile
```


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```
$ ./currency_test.hs

currency_test.hs:23:25: error:
  • Couldn’t match type ‘EUR’ with ‘USD’
    Expected type: Currency USD
      Actual type: Currency EUR
  • In the second argument of ‘add’,
      namely ‘transaction2’
    In the second argument of ‘($)’,
      namely ‘add account transaction2’
    In a stmt of a ’do’ block:
      print $ add account transaction2
```


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Computations are more explicit

```
gtod = scd->tick_gtod + __gtod_offset;
clock = gtod + delta;
min_clock = wrap_max(gtod, old_clock);
max_clock = wrap_max(old_clock, gtod + TICK_NSEC);
```


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Explicit computation patters

Developer> I have a database query here
Developer> it may fail, so it’s kinde unsafe
Compiler> Don’t worry, I’ll check all the deps
Compiler> and let you know if some of them
Compiler> are not ok with that

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```haskell
calculation1 :: Int → Maybe Int
calculation1 arg = Just (arg + 1)

calculation2 :: Int → Maybe Int
calculation2 arg = Nothing

calculation3 :: Int → Maybe Int
calculation3 arg = Just (arg + 2)
```


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```
main = do
    print $ return 1 >>= calculation1 >>= calculation2
    print $ return 1 >>= calculation1 >>= calculation3
```


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The same for state, IO, sequential calculations etc.

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Referential transparency
a.k.a. refactoring without fear

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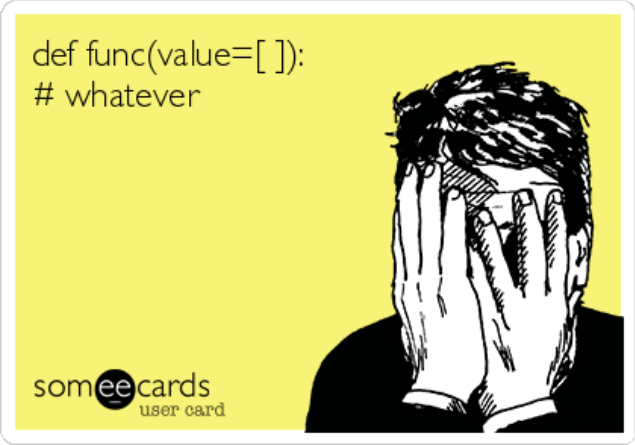
Immutability
a.k.a. you can trust this function



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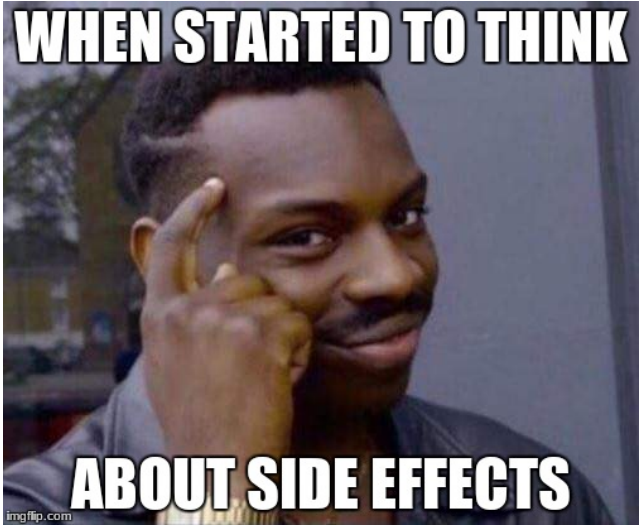
Explicit handling of side effects



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Tooling support, great ecosystem

- ➔ stack
- ➔ ghc
- ➔ ghci
- ➔ editors and IDEs

Remarkable performance

Why is Haskell (GHC) so darn fast?

100

34

Haskell (with the `GHC` compiler) is a lot faster than you
to low-level languages. (A favorite thing for Haskellers
beat it, but that means you are using an inefficient C pr
My question is, why?

Haskell is declarative and based on lambda calculus. N
being based on turing machines, roughly. Indeed, Hask
order. Also, instead of dealing with machine data types

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Do you need a parser?

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Management

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High quality code (less bugs, easy to maintain and to learn)

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Awesome for agile development (because of referential transparency, easy to support and refactor large code base and create dsl)

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Heavy boost for skills development inside your team

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Rumored to be much cost efficient (Aaron Contorer)

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You can attract a lot of talented people

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Company

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A lot of big companies are investing in this

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Contributions is much more visible - not one of thousands nameless companies with java technology stack, you have a ~~dragon~~ Haskell in production

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Great anchor for development of technical culture (CS and stuff)

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Questions?

github.com/erthalion

@erthalion

9erthalion6 at gmail dot com

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