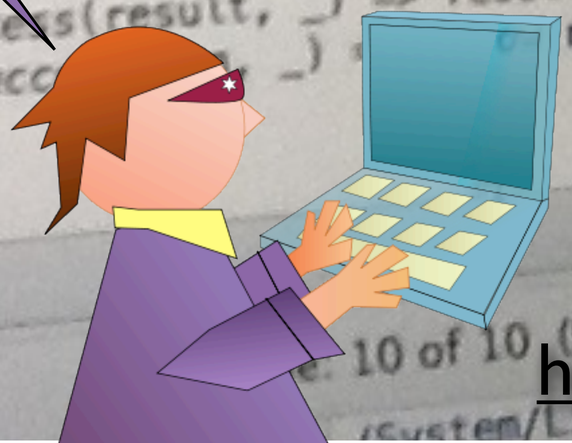
Scala Parser Combinators

Alexander Daniel • @lachdrache • http://lachdrache.wordpress.com

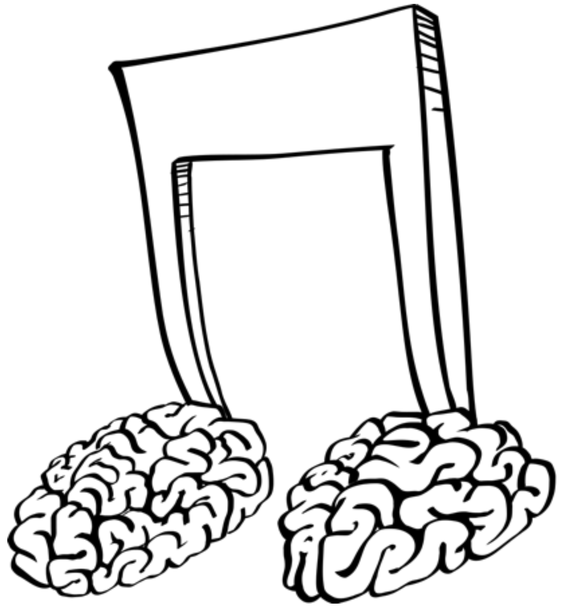
```
class PlusMinusParser extends JavaTokenParsers {

  def expr: Parser[Int] = targetActual <~ comment

  def targetActual: Parser[Int] = duration ~ duration ^^ { case target~actual => actual-target }
  def comment: Parser[String] = """.*""".r

  def duration: Parser[Int] = day | hourMinute

  def day: Parser[Int] = num<~"d" ^^ { days => days*MinutesPerDay}
  def hourMinute: Parser[Int] = hour~minute ^^ { case h~m => h*60 + m }
  def hour: Parser[Int] = num<~"h"
  def minute: Parser[Int] = num<~"m"

  def num = wholeNumber ^^ { _.toInt }

  def apply(input :String):Int = parseAll(expr, input) match {
    case Success(result, _) => result
    case NoSuccess(msg, _) => throw new RuntimeException(msg)
  }
}
```

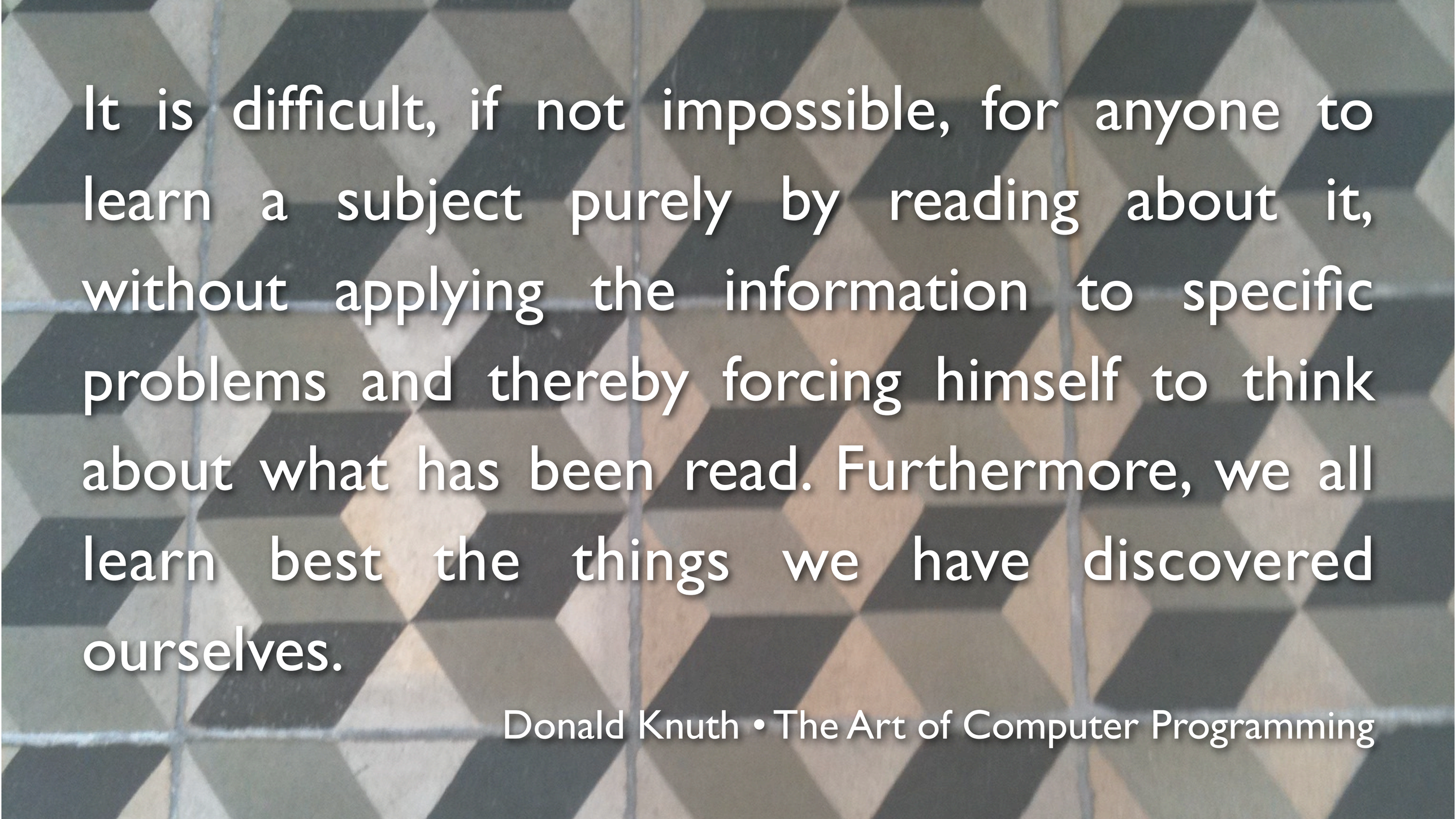
Slides are boring... Show me the code!!!



https://github.com/AlexanderDaniel/plus-minus

- Easy to learn and use
- Good example of an internal Scala DSL
- Great extensibility and maintainability
- Suitable for parsing small to medium sized input




It is difficult, if not impossible, for anyone to learn a subject purely by reading about it, without applying the information to specific problems and thereby forcing himself to think about what has been read. Furthermore, we all learn best the things we have discovered ourselves.
Donald Knuth • The Art of Computer Programming

Wanna learn more?

https://github.com/AlexanderDaniel/parser-combinators#resources

Summary of parser combinators

“...”	*literal*
“...”.r	*regular expression*
P~Q	*sequential composition*
P<~Q, P~>Q	*keep left/right only*
P | Q	*alternative*
opt(P)	*option*
rep(P)	*repetition*
repsep(P, Q)	*interleaved repetition*
P ^^ f	*result conversion*

Operator Precedence

all other special characters

* / %

\+ -

:

= !

< >

&

^

|

all letters

all assignment operators