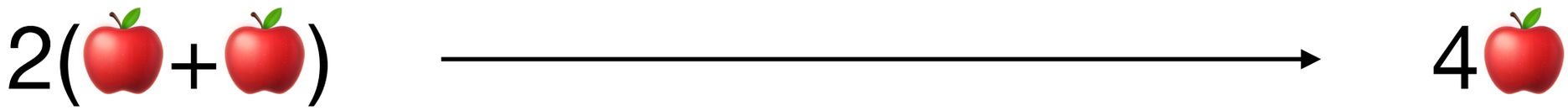
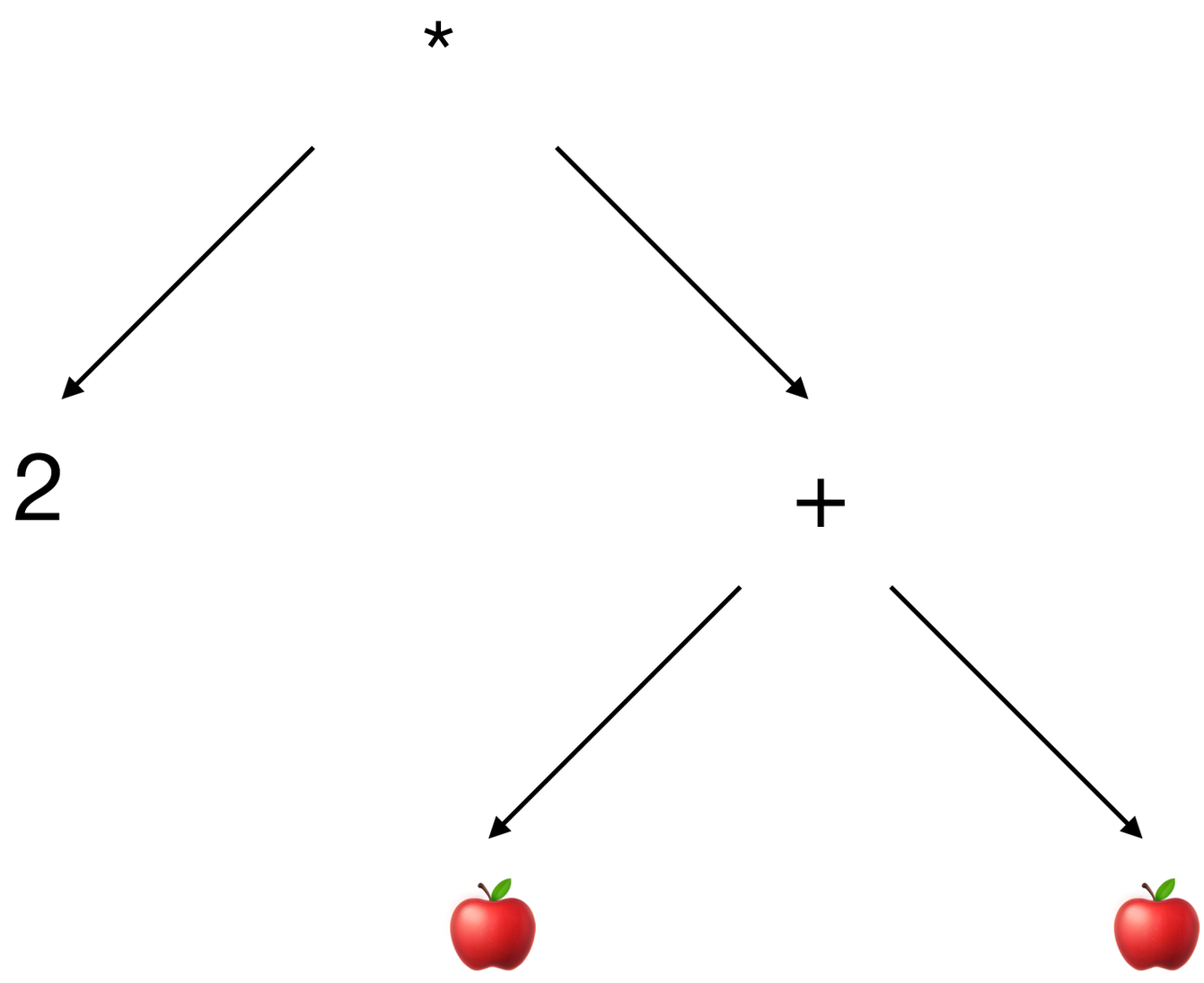
Language Parsing in Action



Johannes Raufeisen - 19. Dezember 2019

Syntax Tree

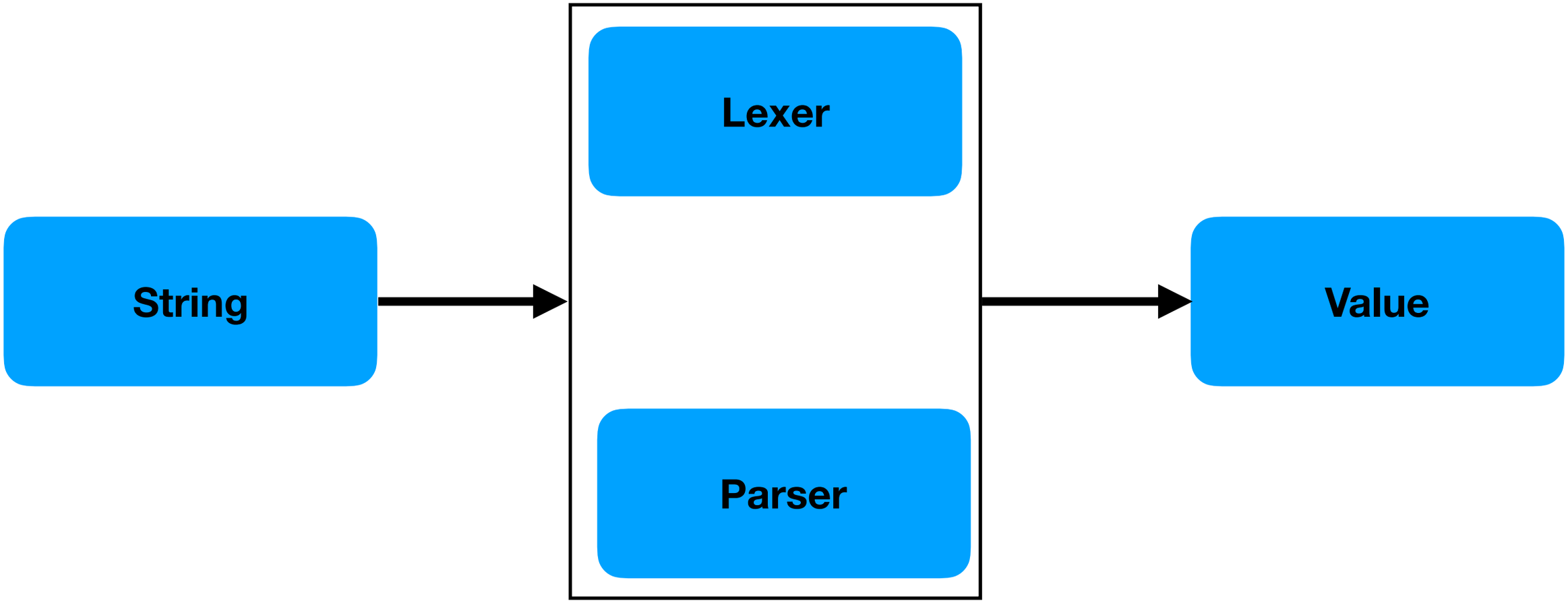


Demo

How to build a calculator …

… without using NSExpression

So, how do we write our own lexer and parser?



We don’t need to - We can use a parser generator

Grammar - Our set of rules

Number:

Any combination of string „0“…“9“

Expression:

Number

Expression + Expression

Expression - Expression

Expression * Expression

Expression / Expression

Parser Generator

- Yacc - Yet another Compiler-Compiler

```
expr : number { $$ = $1; }
| expr '*' expr { $$ = $1 * $3; }
| expr '/' expr { $$ = $1 / $3; }
| expr '+' expr { $$ = $1 + $3; }
| expr '-' expr { $$ = $1 - $3; }

number : INTEGER { $$ = $1; }
| FLOAT { $$ = $1; }
```

- Lex - lexical analyzer

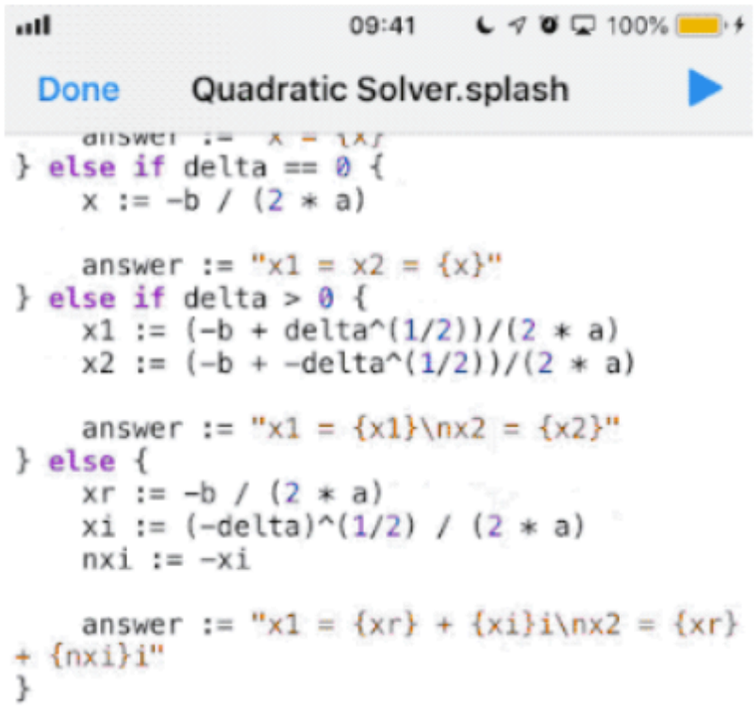
```
[0-9]+\.[0-9]* { yylval.value = atof(yytext); return FLOAT; }
[0-9]+ { yylval.value = atof(yytext); return INTEGER; }
```

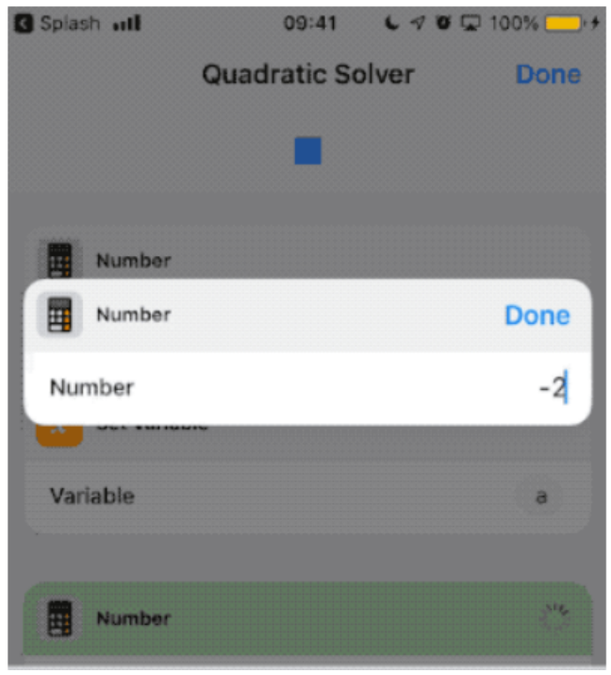
Demo

https://github.com/jraufeisen/Language-Parsing-in-Action

What else can we do?

SPLASH : Simple Programming LAnguage for SHortcuts





My current project: Budget!

```
2015/10/12 Exxon
    Expenses:Auto:Gas          $10.00
    Liabilities:MasterCard     $-10.00
```