

LE  ER

*“Give me a lever long enough and a fulcrum on which to place it,
and I shall move the world.” - Archimedes*

Team Members



Project Manager - Roy Hermann



Language Guru - Chaiwen Chou



System Architect - Mahd Tauseef



System Engineer - Zissis Konstas

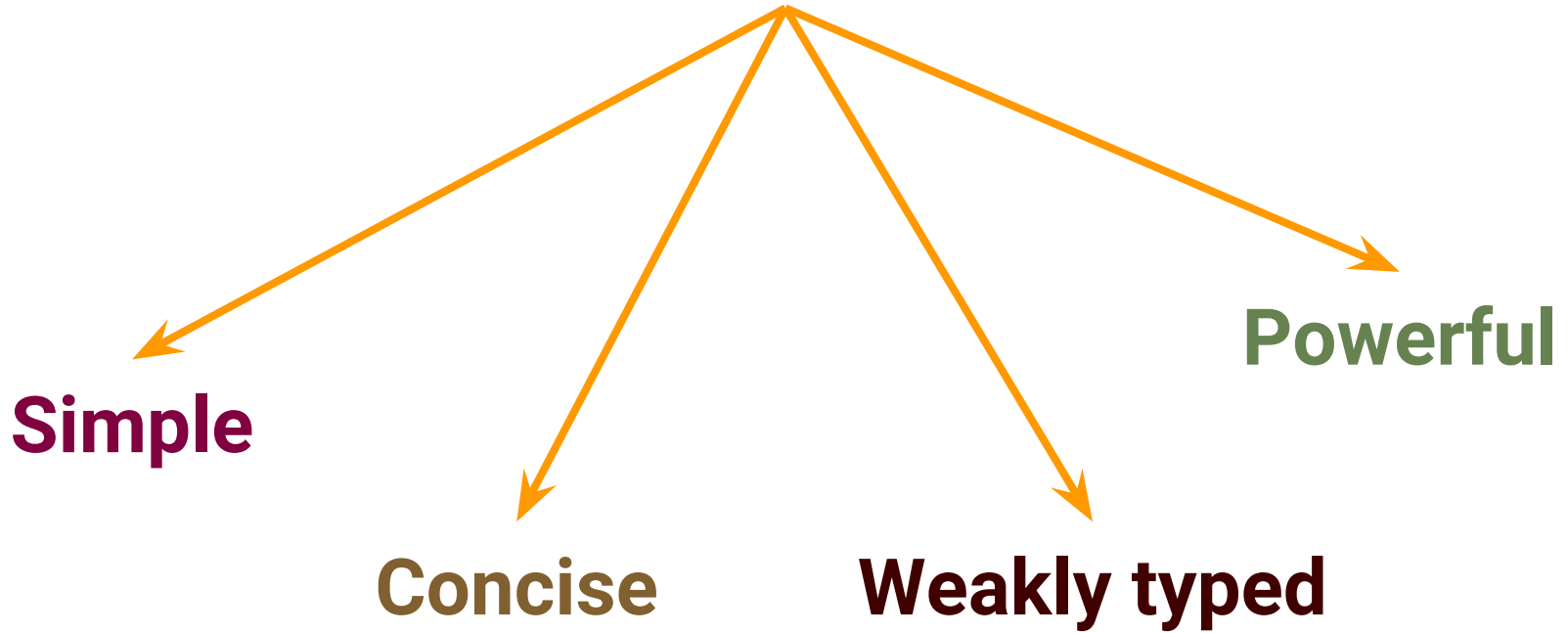


Verification and Validation - Eden Dolev

What is Lever?

- High-level programming language for retrieving useful information from the abundance of data that is available through social networks.

Lever is....



Language Guru

Chaiwen Chou



Hello World!

HelloWorld.lever

```
1 program {  
2     output "helloworld";  
3 }
```

Compile and run in unix shell

```
$ ./leverc HelloWorld.lever  
$ ./lever HelloWorld
```

Lever Social Constructs

SimpleProgram.lever

```
1 program {  
2     var topic = #input;  
3     var user = @input;  
4     var result = get topic, user;  
5     output result;  
6 }
```

example output:

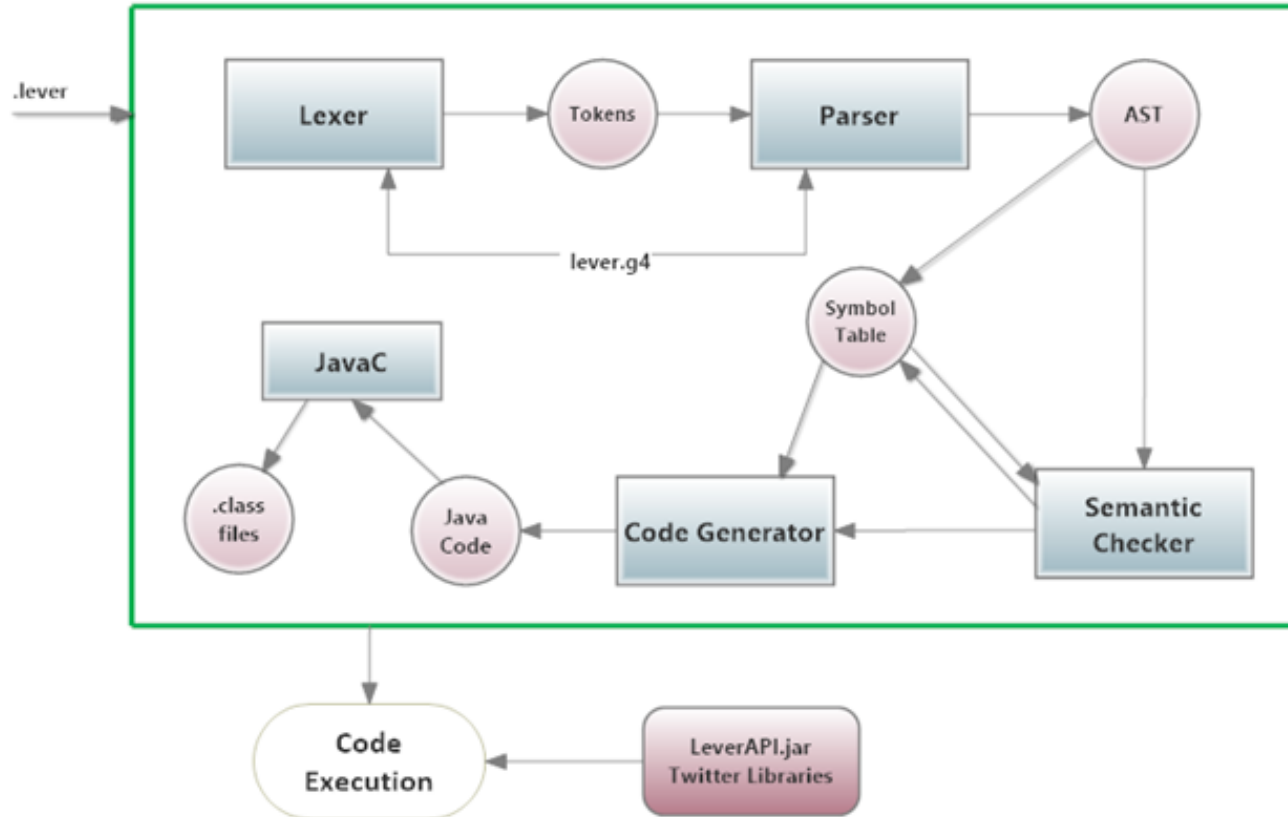
```
@pratapabhyudaya - Conservatives touch 300 mark  
#ConservativesMustWin  
#UKElectionsFri May 08 03:21:59 EDT 2015  
@CidobBarcelona - .@oopenblog: triunfo personal de Cameron limita el  
impacto de la ala derecha del partido conservador #UKElectionsFri
```


System Architect

Mahd Tauseef

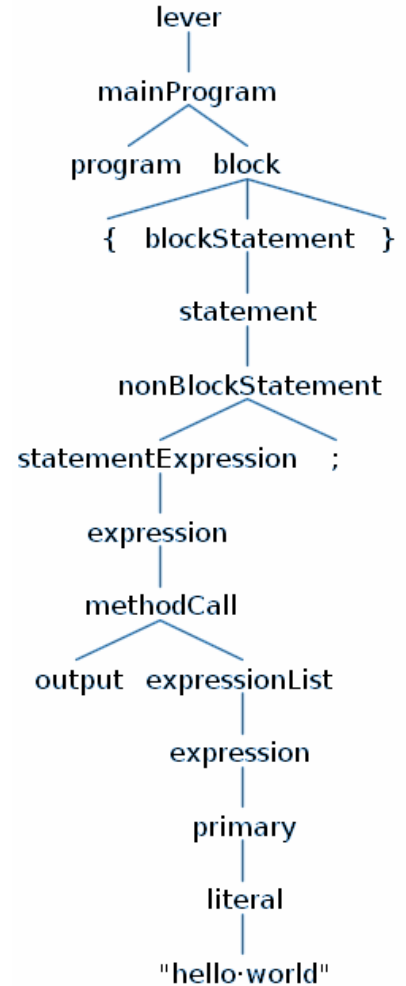


Translator Architecture

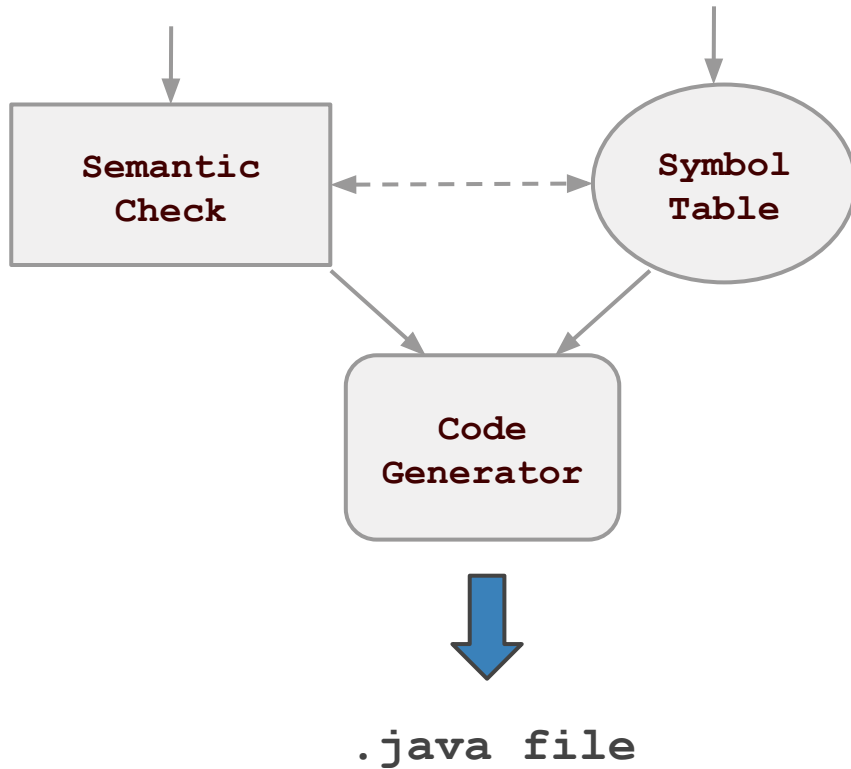


Translator Walkthrough

```
program {  
  output "hello world";  
}
```



Translator Walkthrough



```
1 // HelloWorld.lever
2 program {
3     var a = "hello world";
4     output a;
5 }
```

Identifier	Type
a	String

```
public class HelloWorld {
    public static void main(String[] args) {
        String a="hello world";
        LeverAPI.output(a);
    }
}
```

Systems Engineer

Zissis Konstas



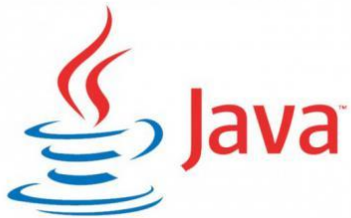
Development and Runtime Environment



GitHub



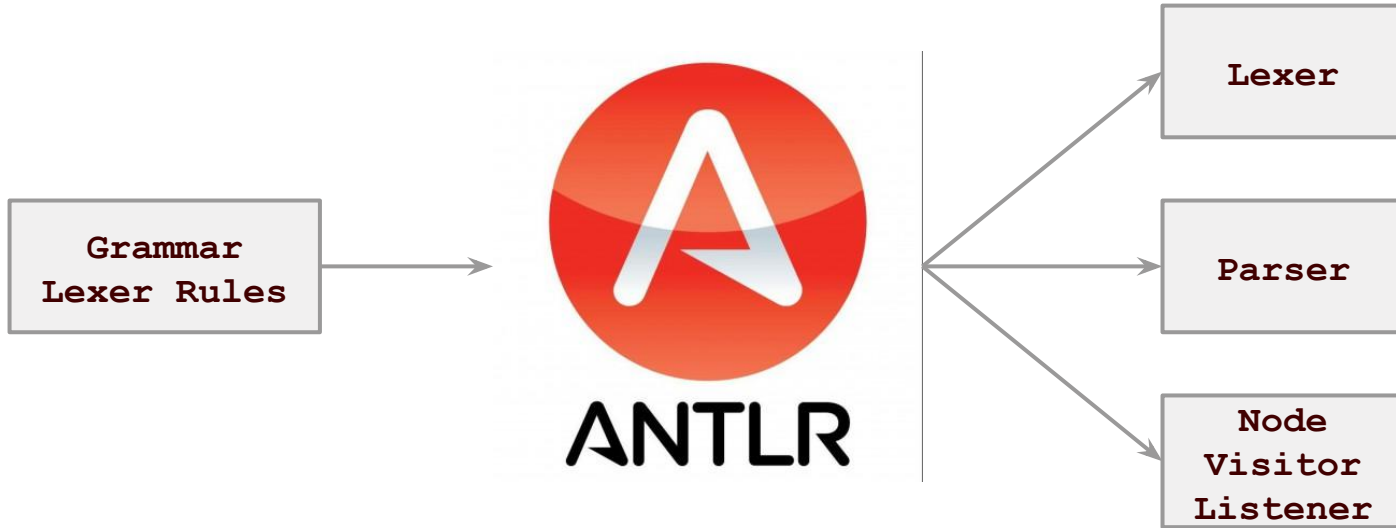
Google Drive



JVM



Antlr 4 - Compiler Generation Tool



Verification and Validation

Eden Dolev



Automated Testing

- Bash
- Test Cases
- Bugs

Sample Test Output

whileLoopTest.lever

```
/*
   Test for:
   WHILE LOOPS
   Expected output: "YES\nYES\nYES\nYES\n"
*/

program {
    var counter = 1;
    while(counter <= 3) {
        output "YES";
        counter++;
    }

    while(counter <=6)
        counter++;

    if(counter == 7) {
        output "YES";
    }
    else {
        output "NO: braceless while failed\n";
    }
}
```

example output:

```
user$ ./tester ifTest.lever whileLoopTest.lever
testing...
Compiling Lever into intermediate code...
Compiling and JARing API...
Compiling program...
Removing intermediate files...
ifTest.lever compiled successfully!
Compiling Lever into intermediate code...
Compiling and JARing API...
Compiling program...
Removing intermediate files...
whileLoopTest.lever compiled successfully!
FAILURE - ifTest.lever - Exp:YES YES YES
Act:YES YES NO: Third if statement failed.
SUCCESS - whileLoopTest.lever

0 compile-errors, 0 runtime-errors,
1 failures and 1 successes
```

Live Demo - UK Elections



Conclusions

- Eden Dolev
- Zissis Konostas
- Mahd Tauseef
- Chaiwen Chou
- Roy Hermann