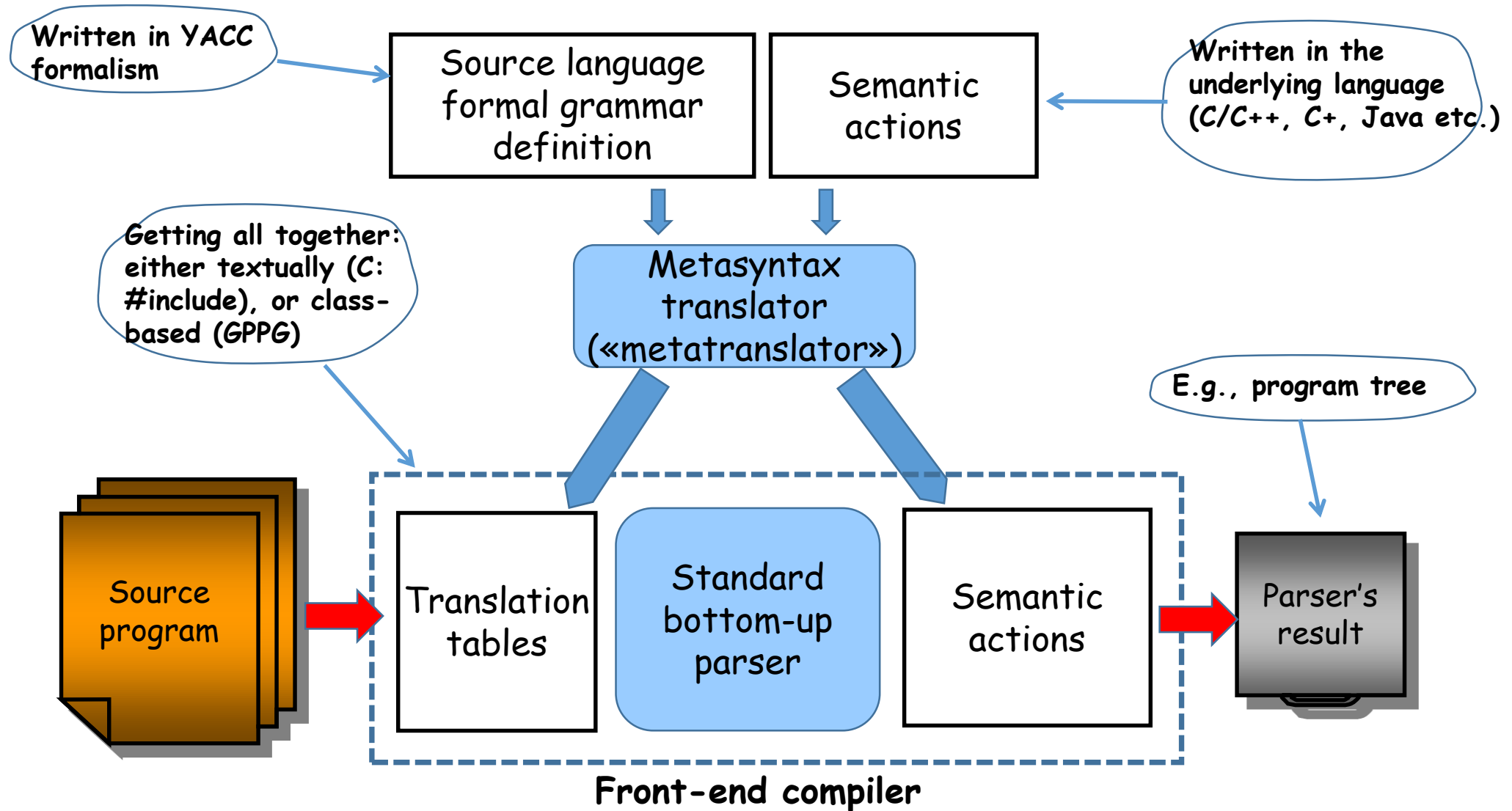


# Compiler Construction: Practical Introduction

## Case Study: Complete Bison-based Java parser

Eugene Zouev  
Spring Semester 2023  
Innopolis University

# Yacc based technology



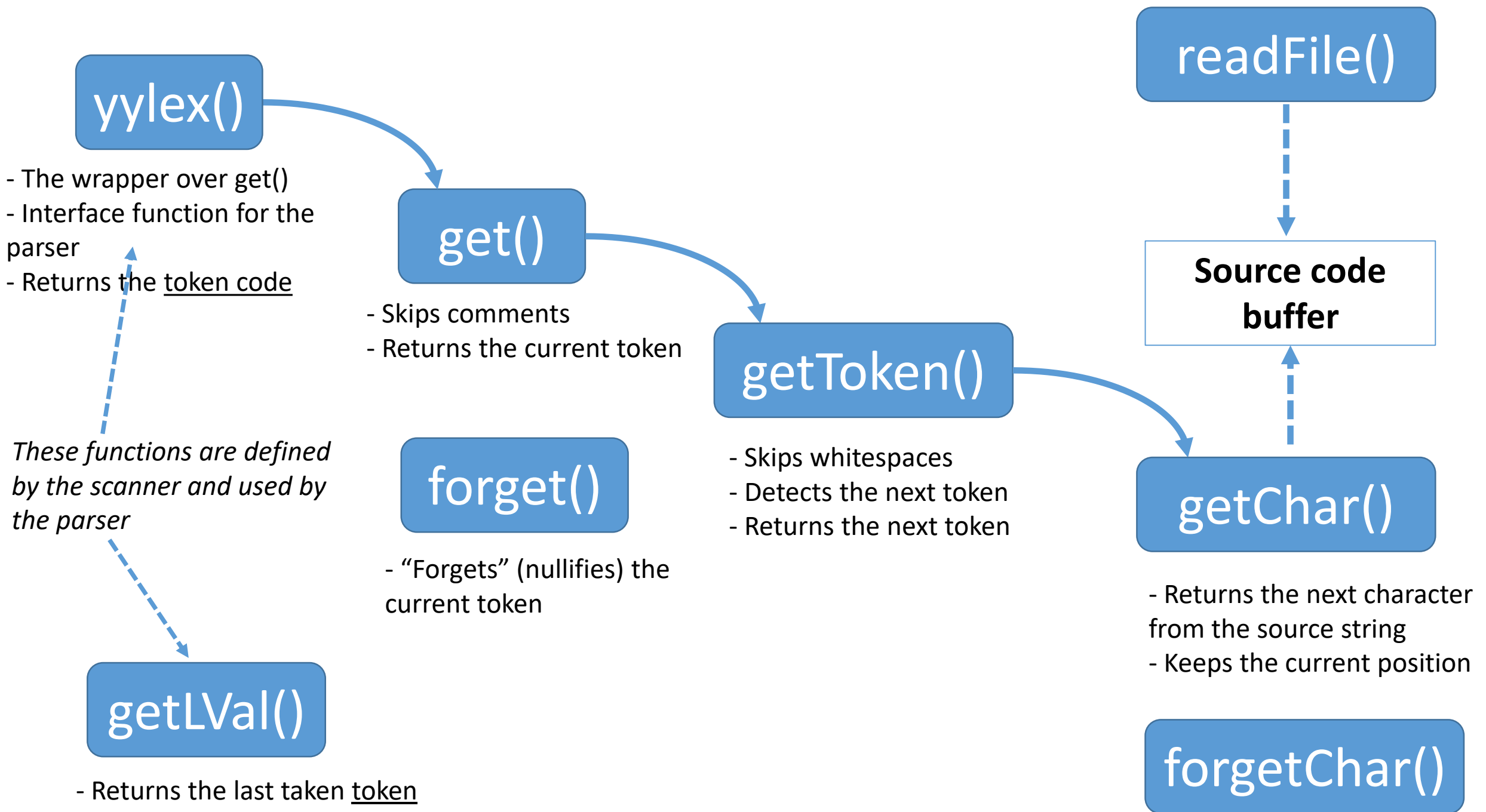
# The Polystat Project

## The Java Part

- Source language: Java
- Implementation based on Bison.
- Implementation language: Java
- Scanner: written from scratch.
- Parser: Bison grammar with semantic actions.
- Result: AST.

# 1. How scanner is implemented

- Token codes
- Token structure
- Reading source program
- Detecting tokens
- Token definitions in the grammar
- Token type.



## 2. How Grammar is implemented

- Grammar from the Java Reference
- Bison-compiled Java grammar
- Types for grammar elements.

### 3. How AST is implemented

- The approach:  
A Java class for each grammar non-terminal.
- The structure of the typical tree node.
- How repetitions/lists are implemented.