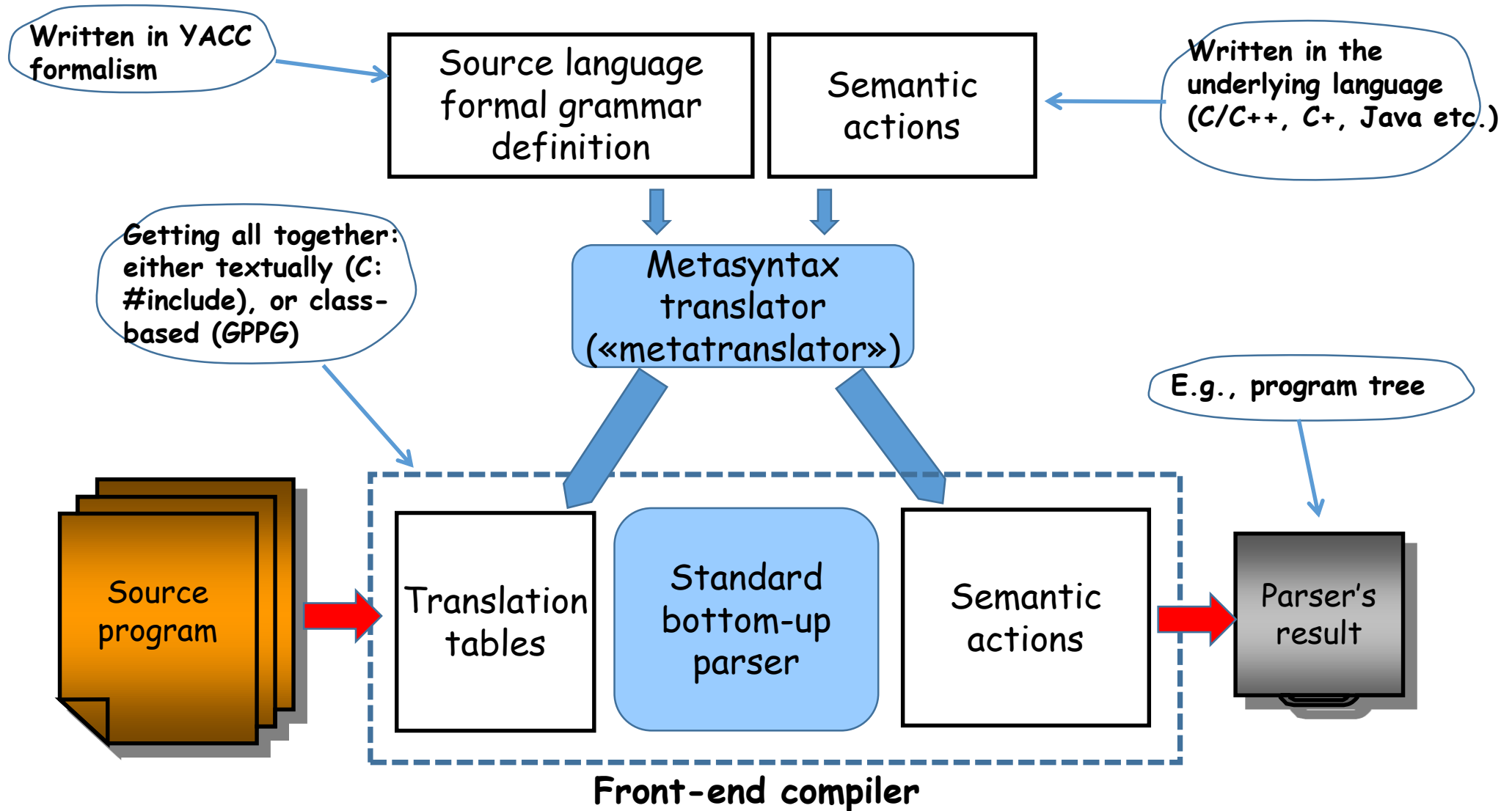


Compiler Construction: Practical Introduction

Case Study: The Complete Bison-based Java parser

Eugene Zouev
Fall Semester 2024
Innopolis University

Yacc based technology



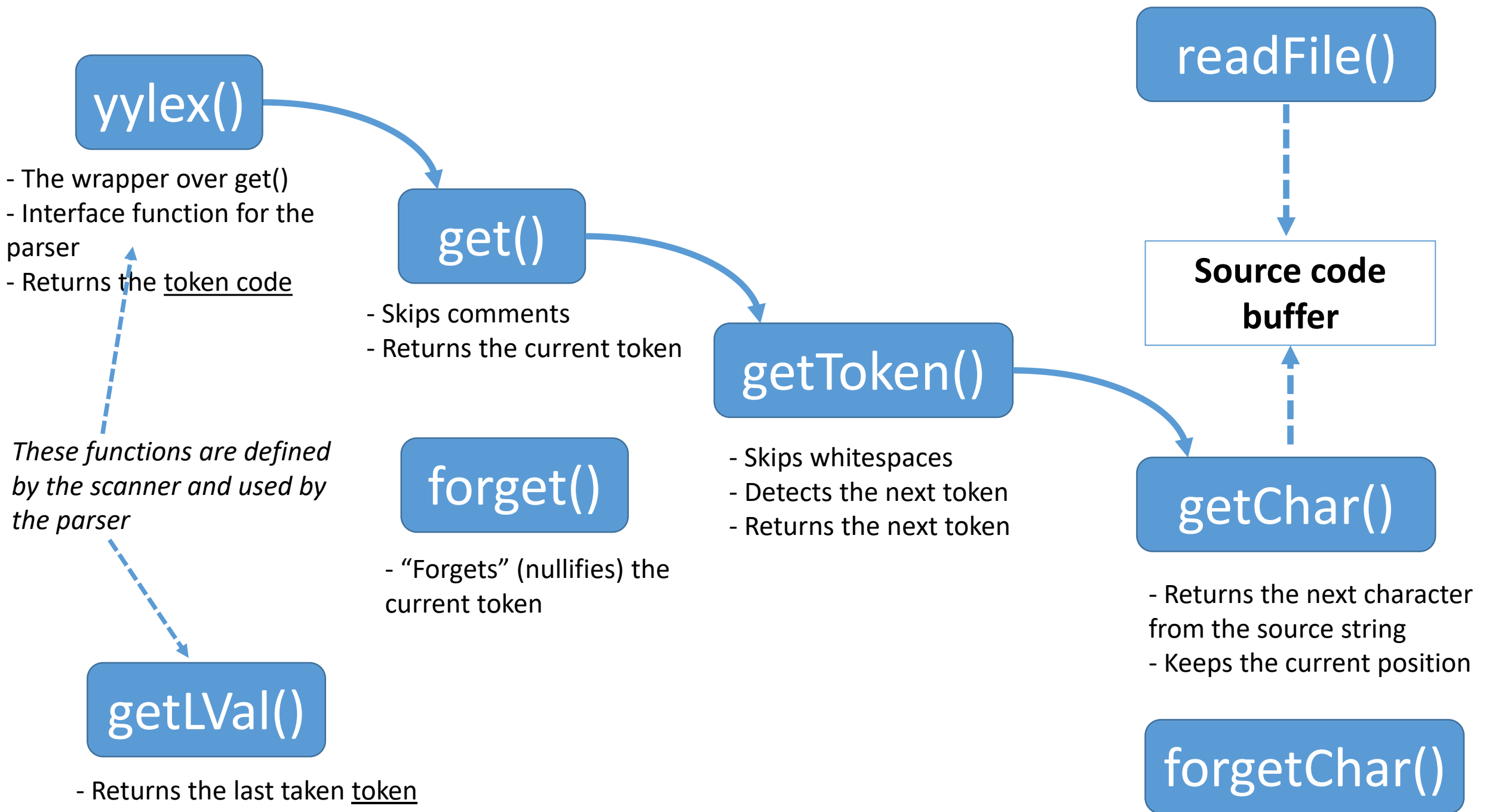
The Polystat Project

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.