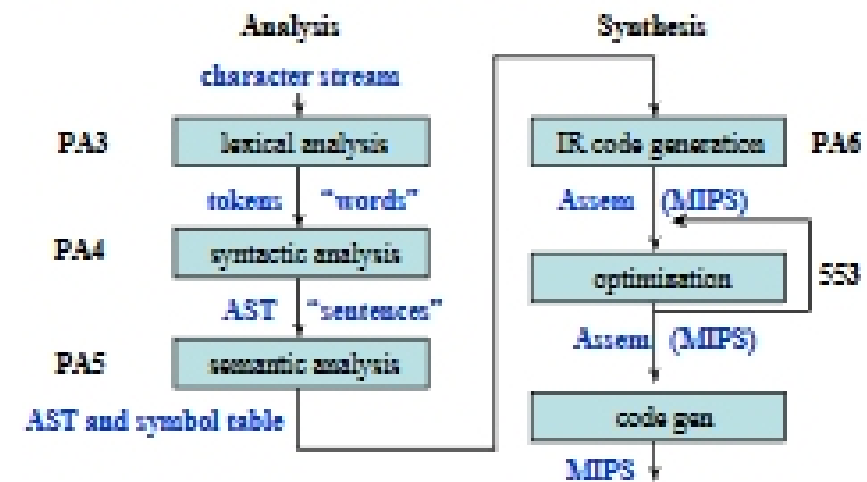


Plan for Today

Structure of the MiniJava Compiler

- Lexer
- Interface between lexer and parser: Symbol and Token/Value
- Parser
- Interface between parser and semantic analysis: ast.node.*
- Interface between semantic analysis and code generation: symbol table

Structure of the MiniJava Compiler



Specifying Tokens with JFlex

JFlex example input file:

```
package mparser;
import java_cup.runtime.Symbol;
```

```
%N
%line
%char
%cup
%public
```

```
%%
return new Symbol(sym.EOF, new
TokenValue("EOF", yyline, yychar));
%%EOF
```

```
LETTER=[a-zA-z]
DIGIT=[0-9]
UNDERSCORE="_"
LETT_DIG_UNDER=[LETTER] | [DIGIT] | [UNDERSCORE]
ID=[LETTER]({LETT_DIG_UNDER})*
```

```
%N
"ID" { return new Symbol(sym.ID, new
TokenValue(yytext(), yyline, yychar)); }
```

```
"boolean" {return new
Symbol(sym.BOOLEAN,...
}
"ID" { return new Symbol(sym.ID, new ...
```

Specifying Grammar with JavaCUP

JavaCUP example input file:

```
package mparser;
import java_cup.runtime.*;
import ast.node.*;
...
terminal AND, ASSIGN, INT;
terminal mparser.TokenValue
NUMBER;
...
non terminal Program program;
non terminal ListOfClassDecl
class_decl_list;
non terminal NonClass
non_class;
```

start with program;

```
program ::=
  main_class class_decl_list:1
  (: RESULT = new Program(m,1); :)
  ;
```

```
non ::=
  | NUMBER:n
  (: Token token = new Token(n.text,
n.line, n.pos);
  RESULT = new IntegerExp( token );
  :)
  ...
```

