

Compilers CFG

1. ProgramStart \rightarrow ProgramUnit ProgramStart2
2. ProgramStart2 \rightarrow ProgramUnit ProgramStart2 | ϵ
3. ProgramUnit \rightarrow Header Block Footer
4. Header \rightarrow program identifier delimiter
5. Block \rightarrow implicit none delimiter TypeDecls Statements
6. Footer \rightarrow end program identifier delimiter
7. TypeDecls \rightarrow TypeDecl TypeDecls2 | ϵ
8. TypeDecls2 \rightarrow TypeDecl TypeDecls2 | ϵ
9. TypeDecl \rightarrow DataType TypeDecl2
10. TypeDecl2 \rightarrow :: IdentifierList delimiter | , parameter :: NamedConstant delimiter
11. DataType \rightarrow integer | real | complex | logical | CharacterDType
12. NamedConstant \rightarrow identifier = LogicalOrConst
13. CharacterDType \rightarrow character CharacterDType2
14. CharacterDType2 \rightarrow (len = IdorConst) | ϵ
15. Statements \rightarrow Statement Statements2
16. Statements2 \rightarrow Statement Statements2 | ϵ
17. Statement \rightarrow Assignment | Print | Read | IF | DoLoop | ϵ
18. Assignment \rightarrow identifier = Relations delimiter
19. Relations \rightarrow IdorConst Relation | LogicalVal
20. Relation \rightarrow ArithmeticOp IdorConst Relation2 | ϵ
21. Relation2 \rightarrow ArithmeticOp IdorConst Relation2 | ϵ
22. Print \rightarrow print * PrintCall delimiter
23. PrintCall \rightarrow , PrintList | ϵ
24. PrintList \rightarrow PrintHolder PrintList2
25. PrintList2 \rightarrow , PrintHolder PrintList2 | ϵ

26. PrintHolder \rightarrow identifier | constant | string | ϵ
27. Read \rightarrow read * , IdentifierList delimiter
28. IF \rightarrow IFStart IF2
29. IF2 \rightarrow end if delimiter | else delimiter Statements end if delimiter
30. IFStart \rightarrow if (Conditional) then delimiter Statements
31. DoLoop \rightarrow DoStart Statements end do delimiter
32. DoStart \rightarrow do identifier = constant , IdorConst Step delimiter
33. Step \rightarrow , IdorConst | ϵ
34. ArithmeticOp \rightarrow * | / | + | -
35. IdentifierList \rightarrow identifier IdentifierList2
36. IdentifierList2 \rightarrow , identifier IdentifierList2 | ϵ
37. Conditional \rightarrow IdorConst RelationalOp IdorConst | identifier | LogicalVal
38. IdorConst \rightarrow identifier | constant
39. RelationalOp \rightarrow > | < | <= | >= | == | /=
40. LogicalOrIdentifier \rightarrow LogicalVal | IdentifierList
41. LogicalOrConst \rightarrow LogicalVal | constant
42. LogicalVal \rightarrow true | false