A VIDEO LECTURE ON PARSE TREE

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PARSE TREE

A parse tree is a diagrammatic representation of the parsed structure of a sentence or string. In the syntax analysis phase, a compiler verifies whether or not the tokens generated by the lexical analyzer are grouped according to the syntactic rules of the language. This is done by pare tree.

Than from parse tree intermediate code can be generated.

A parse tree for a grammar G is a tree where

- the root is the start symbol for G
- the interior nodes are the nonterminals of G
- the leaf nodes are the terminal symbols of G.
- the children of a node T (from left to right) correspond to the symbols on the right hand side of some production for T in G.

Ambiguity:

A grammar that produces more than one parse tree for some sentence is said to be ambiguous.

There are two ways to draw a parse tree:

1) Top-down Approach:

- Starts with the starting symbol S
- Goes down to tree leaves

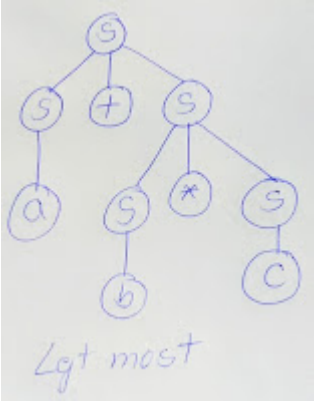
2) Bottom-up Approach:

- Starts from tree leaves
- Proceeds upward to the starting symbol S

Leftmost and Rightmost Derivation of a String:

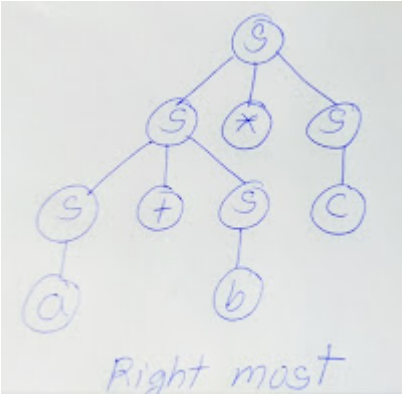
1) Leftmost derivation: A leftmost derivation is obtained by applying production to the leftmost variable in each step.

For example, S –> a+b*c



2) Rightmost derivation: A rightmost derivation is obtained by applying production to the rightmost variable in each step.

For example, S –> a+b*c



Principles of Programming Languages:

EasyExamNotes.com covered following topics in these notes.

- Language Evaluation Criteria
- Influences on Language Design
- Language Categories
- Programming Paradigms
- Compilation
- Virtual Machines
- Programming Environments
- Issues in Language Translation
- Parse Tree
- Pointer and Reference type
- Concept of Binding
- Type Checking
- Strong typing
- Sequence control with Expression
- Exception Handling
- Subprograms
- Fundamentals of sub-programs
- Scope and lifetime of variable
- static and dynamic scope
- Design issues of subprogram and operations
- Local referencing environments
- Parameter passing methods
- Overloaded sub-programs
- Generic sub-programs
- Design issues for functions
- co routines
- Abstract Data types

- Abstraction and encapsulation
- Static and Stack-Based Storage management
- Garbage Collection
- OOP in C++
- OOP in Java
- OOP in C#
- OOP in PHP
- Concurrency
- Semaphores
- Monitors
- Message passing
- Java threads
- C# threads
- Exception handling
- Exceptions
- Exception Propagation
- Exception handler in C++
- Exception handler in Java
- Introduction and overview of Logic programming
- Basic elements of Prolog
- Application of Logic programming
- Functional programming languages
- Introduction to 4GL

Practicals:

- Memory Implementation of 2D Array.
- Memory Implementation of 3D Array.
- Implementation of pointers in C++.

- Write a program in Java to implement exception handling.
- Write a program in C++ to implement call by value parameter passing Method.
- Write a program in C++ to implement call by reference parameter passing Method.
- Write a program in Java to implement concurrent execution of a job using threads.
- Implement Inheritance in C#.
- Implement Encapsulation in C#.
- Implement static/compiletime Polymorphism in C#.
- Implement dynamic/runtime Polymorphism in C#.

Previous years solved papers:

- PPL|RGPV|May 2018
- PPL|RGPV|June 2017

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References:

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3. Tucker, "Programming Languages: Principles and paradigms ", Tata McGraw –Hill.

4. E Horowitz, “Programming Languages”, 2nd Edition, Addison Wesley

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