34 Lecture - CS402

Important Mcqs

1. **What does a total language tree represent?**
   a) A subset of all possible strings generated by a CFG
   b) The starting symbol of a CFG
   c) All possible strings generated by a CFG
   d) The non-terminal symbols of a CFG
   Answer: c

   What do the nodes in a total language tree represent?
   a) The input strings generated by a CFG
   b) The production rules of a CFG
   c) The terminal symbols of a CFG
   d) The symbols of a CFG
   Answer: d

   What do the leaves of a total language tree represent?
   a) The starting symbol of a CFG
   b) The non-terminal symbols of a CFG
   c) The input strings generated by a CFG
   d) The terminal symbols of a CFG
   Answer: d

   How is a total language tree constructed?
   a) By applying the production rules of the grammar to the input strings
   b) By applying the production rules of the grammar to the starting symbol
   c) By applying the production rules of the grammar to the terminal symbols
   d) By applying the production rules of the grammar recursively to the symbols in the tree
   Answer: d

   What is the purpose of a total language tree?
   a) To generate input strings for a CFG
   b) To visualize the structure of a language generated by a CFG
   c) To simplify the production rules of a CFG
   d) To reduce the size of a CFG
   Answer: b

   Can a total language tree have multiple leaves?
   a) Yes, if the CFG generates multiple input strings
   b) No, it can only have one leaf
   c) It depends on the size of the CFG
   d) It depends on the length of the input string
   Answer: a

   What is the difference between a total language tree and a parse tree?
   a) They are the same thing

b) A parse tree represents a single input string, while a total language tree represents all possible strings generated by a CFG
c) A parse tree represents a subset of all possible strings generated by a CFG, while a total language tree represents all possible strings
d) A parse tree is used for regular languages, while a total language tree is used for context-free languages
Answer: b

What is the importance of the total language tree in parsing?
a) It helps to determine if a string is generated by a CFG
b) It helps to simplify the production rules of a CFG
c) It helps to reduce the size of a CFG
d) It helps to visualize the structure of the language generated by a CFG
Answer: d

Can a total language tree be infinite?
a) Yes, if the CFG generates an infinite number of input strings
b) No, it is always finite
c) It depends on the size of the CFG
d) It depends on the length of the input string
Answer: a

What is the time complexity of constructing a total language tree?
a) O(n)
b) O(log n)
c) O(n^2)
d) It depends on the size of the CFG and the length of the input string
Answer: d