

35 Lecture - CS402

Important Subjective

1. **What is a null production in context-free grammars?**

Answer: A null production is a production rule in a context-free grammar that generates an empty string or no symbols.

What is the purpose of null productions in context-free grammars?

Answer: Null productions can be used to define empty strings or to allow certain parts of a string to be optional.

How is a null production denoted in context-free grammars?

Answer: A null production is denoted by the symbol ϵ , which represents an empty string.

Can a context-free grammar have more than one null production?

Answer: Yes, a context-free grammar can have multiple null productions.

Can a null production be applied to any non-terminal symbol in a context-free grammar?

Answer: No, a null production can only be applied to non-terminal symbols that can generate an empty string.

How can null productions be eliminated from a context-free grammar?

Answer: Null productions can be eliminated by removing them and modifying the remaining production rules accordingly.

What is the effect of a null production on the language generated by a context-free grammar?

Answer: A null production allows for the generation of the empty string, which can affect the language generated by the grammar.

Can a context-free grammar generate the empty string without using null productions?

Answer: Yes, a context-free grammar can generate the empty string using other production rules or by defining an empty string as a terminal symbol.

How can null productions be used to simplify the production rules of a context-free grammar?

Answer: Null productions can be used to simplify the production rules by allowing for certain parts of a string to be optional, which can reduce the number of production rules needed.

Can null productions be used in conjunction with other production rules in a context-free grammar?

Answer: Yes, null productions can be combined with other production rules in a context-free grammar to generate a variety of strings.