UNIT-III

Subject-Theory of Computation

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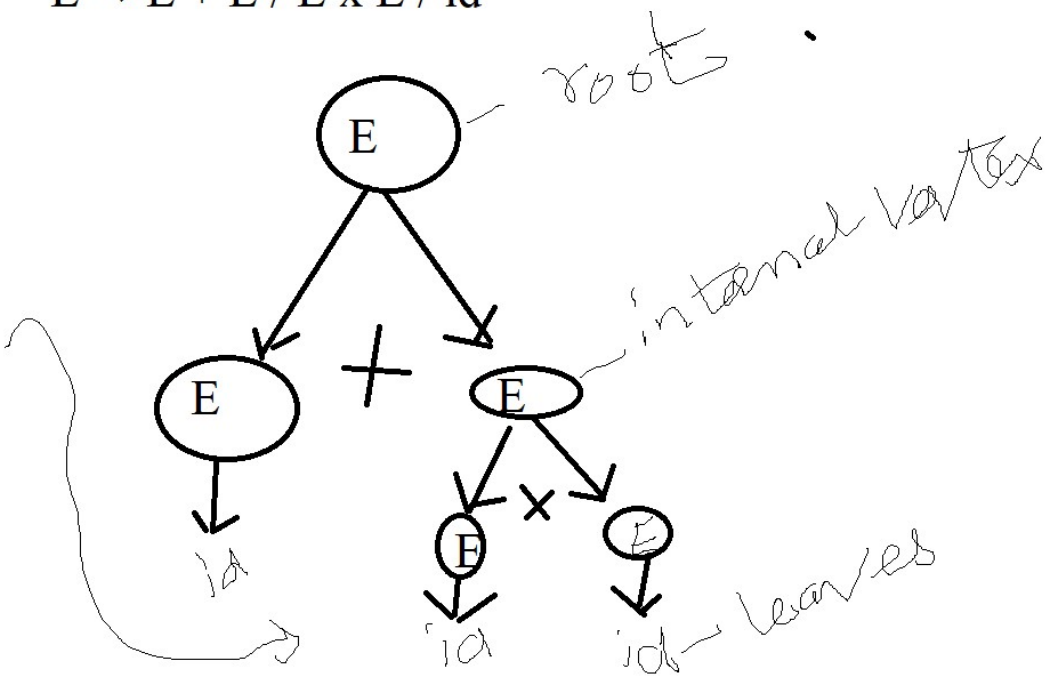
(NBA and NAAC accredited, ISO 9001:2015 certified)

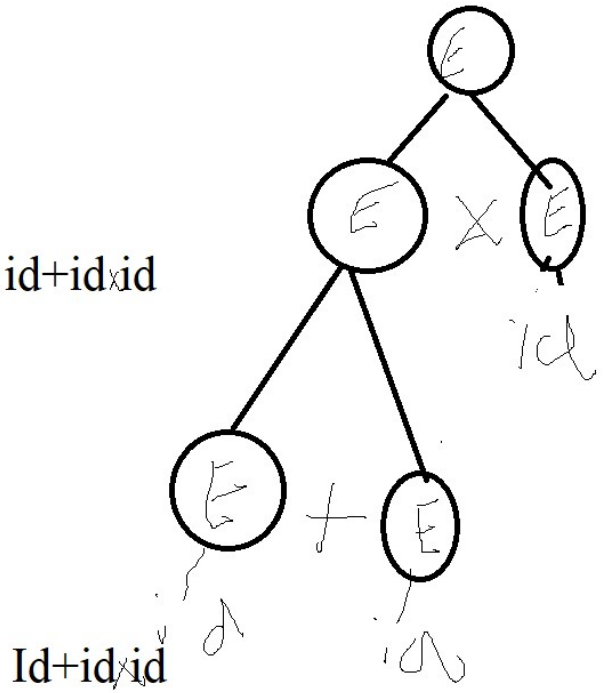
Ambiguous Grammar

- A grammar is said to ambiguous if for any string generated by it, it produces more than one Parse tree.
- Ambiguity can be resolved by precedence and associativity rule.

- Check whether the given grammar is ambiguous or not.
- $E \rightarrow E + E / E * E / id$

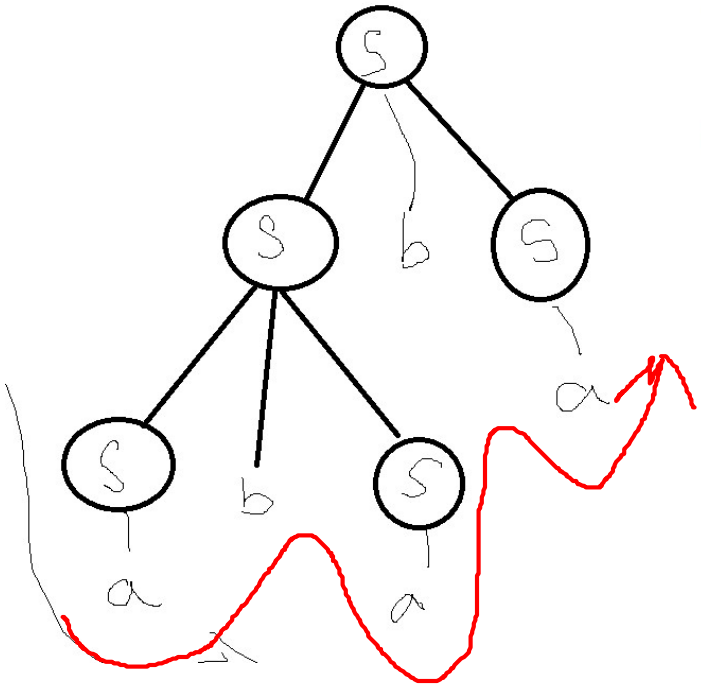
$E \rightarrow E + E / E \times E / id$





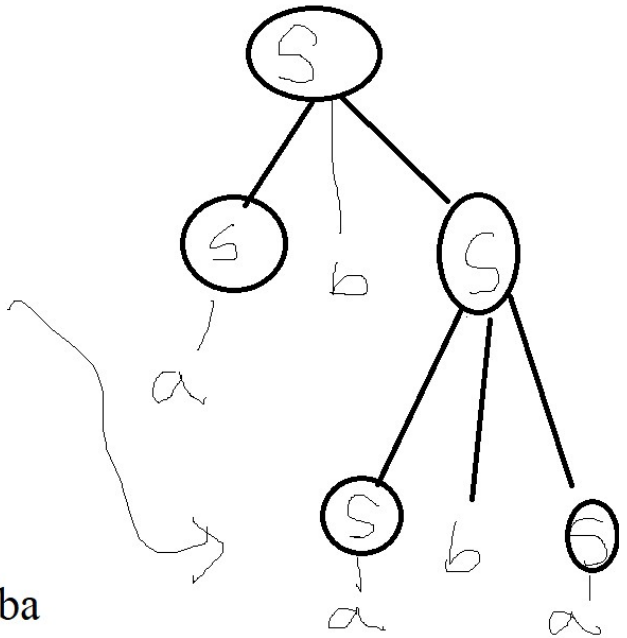
As we get the same sentence id+id*id by two different parse trees , we call this grammar as ambiguous grammar

- Check whether the given grammar is ambiguous or not.
- S->SbS | a



- S->SbS | a

ababa



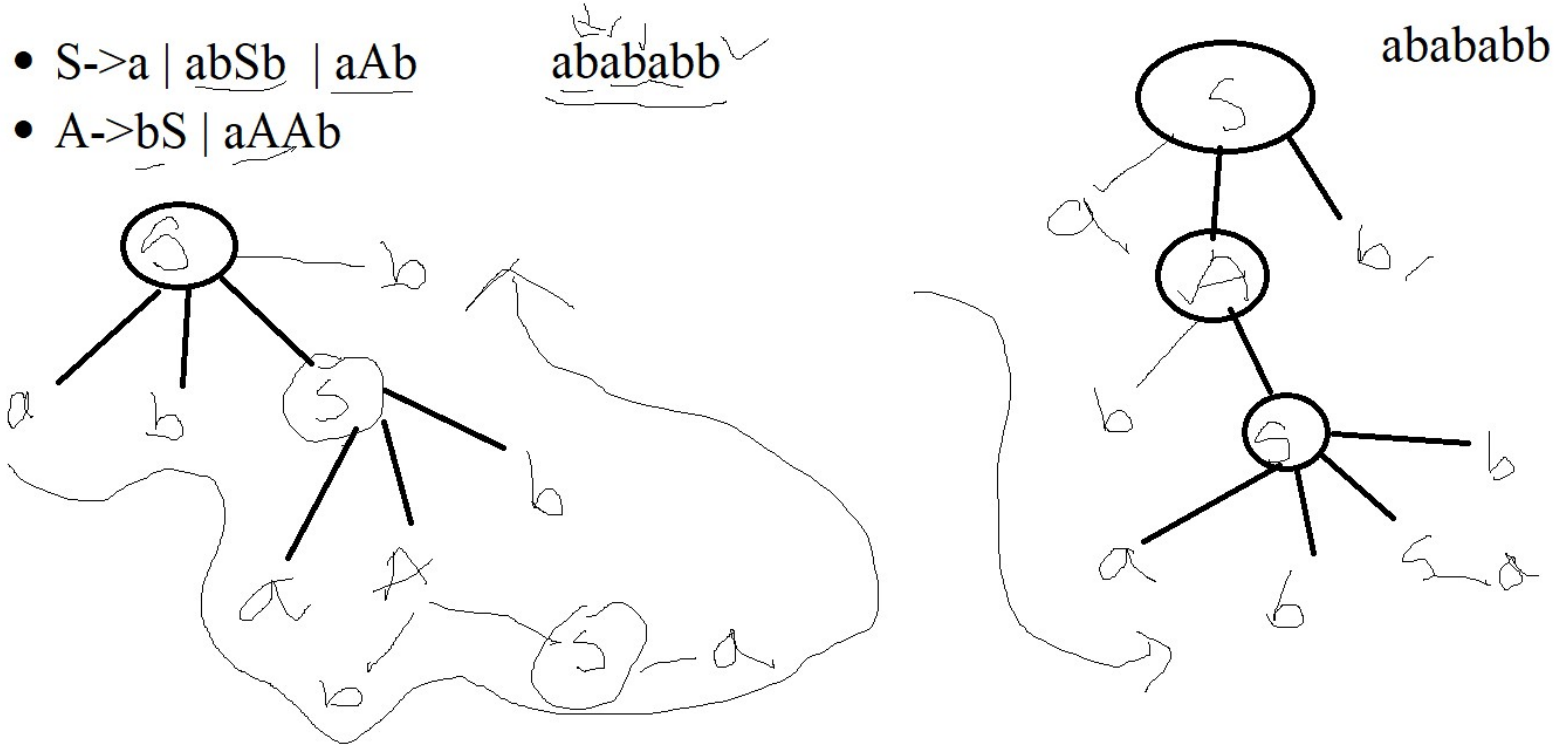
ababa

As we get the sentence “ababa” by two different parse tree, this grammar is an ambiguous grammar.

- HW
- Check whether the given grammar is ambiguous or not.
- S->a | abSb | aAb
- A->bS | aAAb

- S->a | abSb | aAb
- A->bS | aAAb

ababababb



As we get the same sentence" abababb" by two different parse trees the given grammar is an ambiguous grammar.

HW Check whether the given grammar is ambiguous or not.

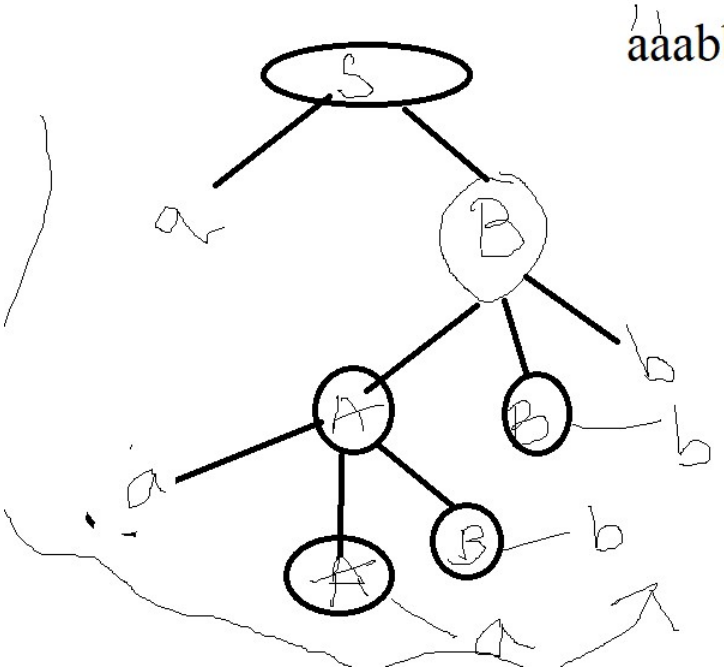
S->aB | ab

A->aAB | a

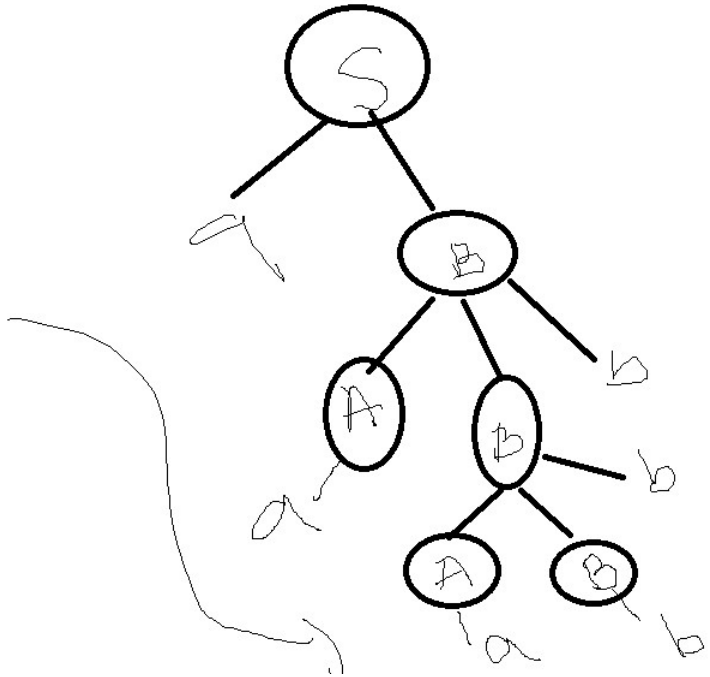
B->ABb | b

S->aB | ab,A->aAB | a,B->ABb | b

aaabbb



aaabbb



As we get the same sentence" aaabbb" by two different parse trees the given grammar is an ambiguous grammar.