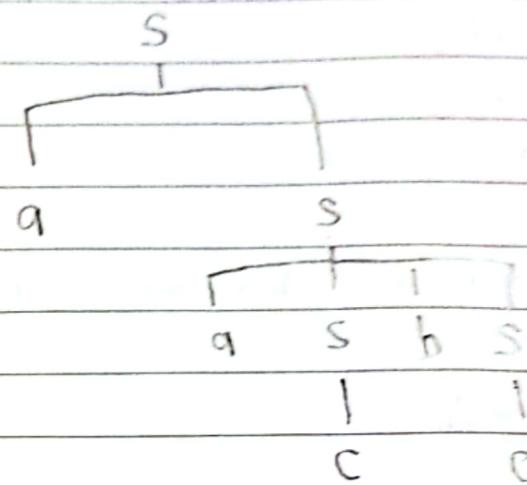
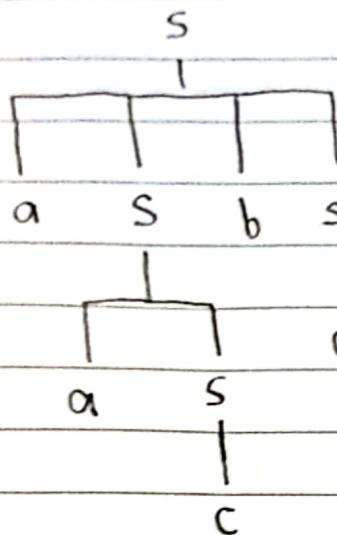


## Tutorial Week 8

## Question 2



$S \rightarrow aaacb$

$S \rightarrow aacbc$

∴ The grammar is ambiguous

### Question 3

a)  $\text{Expr} \rightarrow \text{Expr} + \text{Expr}$  (Rule 1)

$\text{Expr} \rightarrow \text{var} + \text{Expr}$  (Rule 4)

$\text{Expr} \rightarrow \text{var} + \text{const}$  (Rule 5)

b)  $\text{Expr} \rightarrow \text{Expr} * \text{Expr}$  (Rule 2)

$\text{Expr} \rightarrow \text{Expr} + \text{Expr} * \text{Expr}$  (Rule 1)

$\text{Expr} \rightarrow \text{var} + \text{Expr} * \text{Expr}$  (Rule 4)

$\text{Expr} \rightarrow \text{var} + \text{var} * \text{Expr}$  (Rule 3)

$\text{Expr} \rightarrow \text{var} + \text{var} * \text{var}$  (Rule 6)

c)  $\text{Expr} \rightarrow (\text{Expr})$  (Rule 3)

$\text{Expr} \rightarrow (\text{var})$  (Rule 4)

d)  $\text{Expr} \rightarrow \text{Expr} * \text{Expr}$  (Rule 2)

$\text{Expr} \rightarrow (\text{Expr}) * \text{Expr}$  (Rule 3)

$\text{Expr} \rightarrow (\text{Expr} + \text{Expr}) * \text{Expr}$  (Rule 1)

$\text{Expr} \rightarrow (\text{var} + \text{Expr}) * \text{Expr}$  (Rule 4)

$\text{Expr} \rightarrow (\text{var} + \text{var}) * \text{Expr}$  (Rule 4)

$\text{Expr} \rightarrow (\text{var} + \text{var}) * \text{var}$  (Rule 4)