

Hafiz Raayan Akbar

22K-1373

$$S \rightarrow (S)S \mid \epsilon$$

Step 1 Remove useless symbols & production & null production

$$S \rightarrow (S)S \mid (S) \mid (S)S \mid (S) \mid (S)S \mid (S)$$

$$S \rightarrow (S)S \mid (S) \mid (S)S \mid (S)$$

$$S \rightarrow (S)S \mid (S) \mid (S)S \mid (S)$$

2) No useless & null production

$$S \rightarrow (S)S \mid (S) \mid (S)S \mid (S)$$

CFG to CNF

$$L \rightarrow ($$

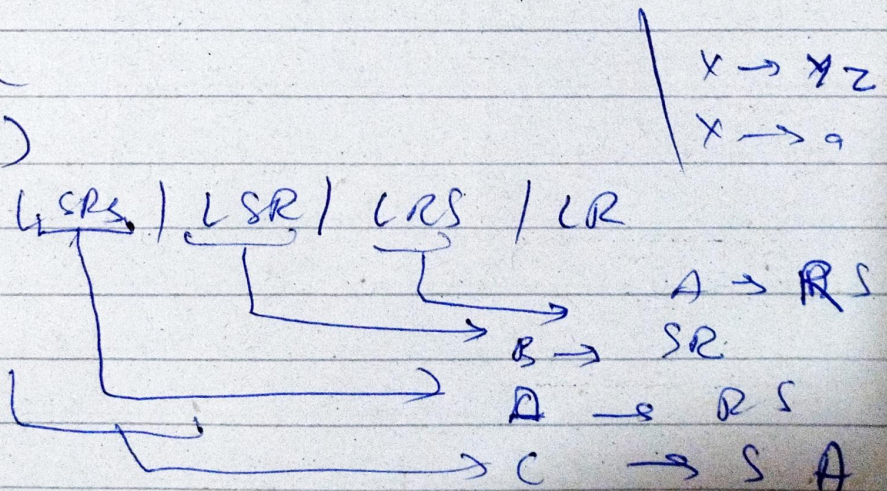
$$R \rightarrow)$$

$$S \rightarrow LRS \mid LSR \mid LRS \mid LR$$

$$L \rightarrow ($$

$$R \rightarrow)$$

$$S \rightarrow LRS \mid LSR \mid LRS \mid LR$$



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$S \rightarrow LC \mid LB \mid LA \mid LR.$

$A \rightarrow RS$

$B \rightarrow SR$

$C \rightarrow CA$

$L \rightarrow ($

$R \rightarrow)$

Thus the required CNF