CSC 220

10/22/2020

Grammar

$$L = \{ bb, bbbb, \ldots \}$$

$$= \{ (bb)^{n+1} \mid n \in \mathbb{N} \}$$

bb, bbbb, b—b, b—b, ---
2 4 6 8

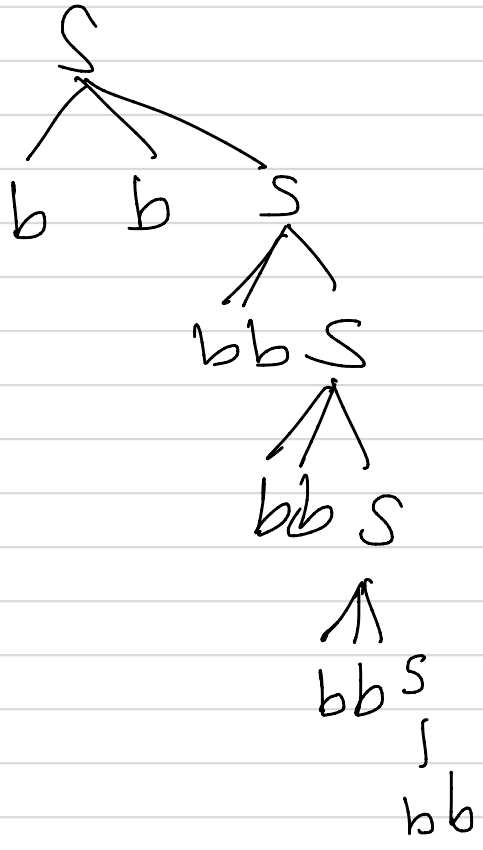
$$S \rightarrow bb \mid bbS$$

or

$$S \rightarrow Sbb \mid bb$$

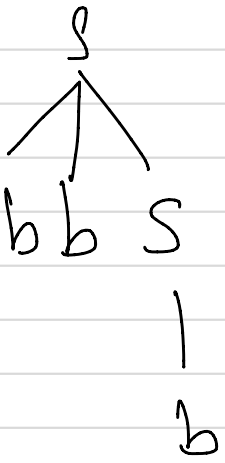
$S \rightarrow bb$

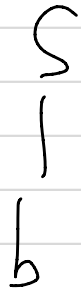
$S \rightarrow bbS \rightarrow bbbb$

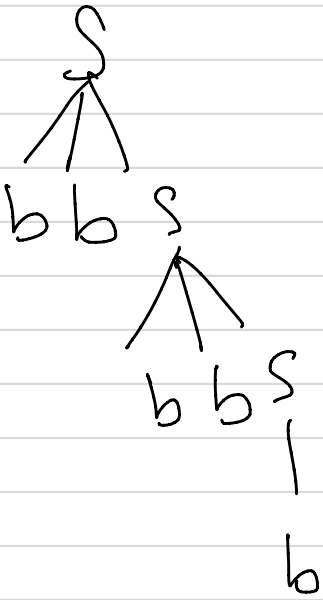


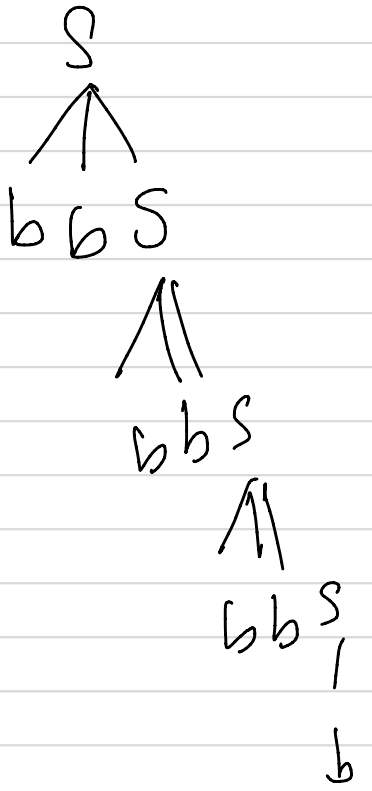
$$L = \{ b, bbb, \ldots \} = \{ b^{2n+1} \mid n \in \mathbb{N} \}$$

$S \rightarrow b \mid bbS$





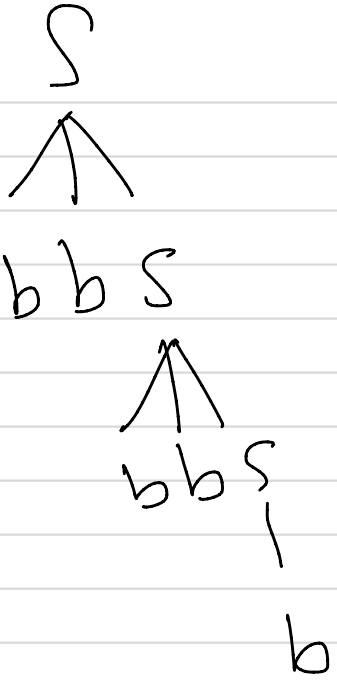


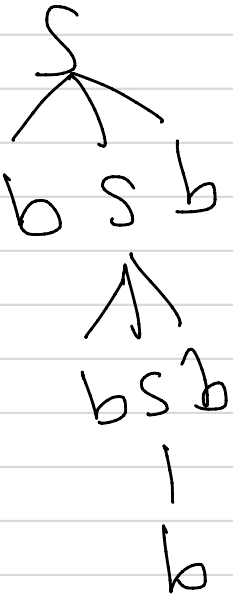


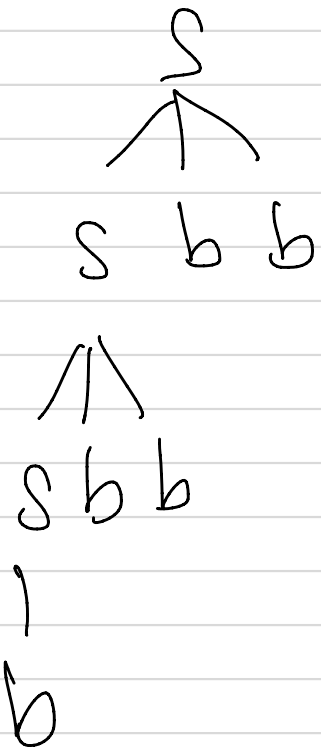
$S \rightarrow bbS \mid b$

$S \rightarrow Sbb \mid b$

$S \rightarrow bSb \mid b$







$L = \{0, 1, 11\}$

$S \rightarrow 0 \mid 1 \mid 11$

$L = \{\lambda\}$

$S \rightarrow \lambda$

$L = \phi$

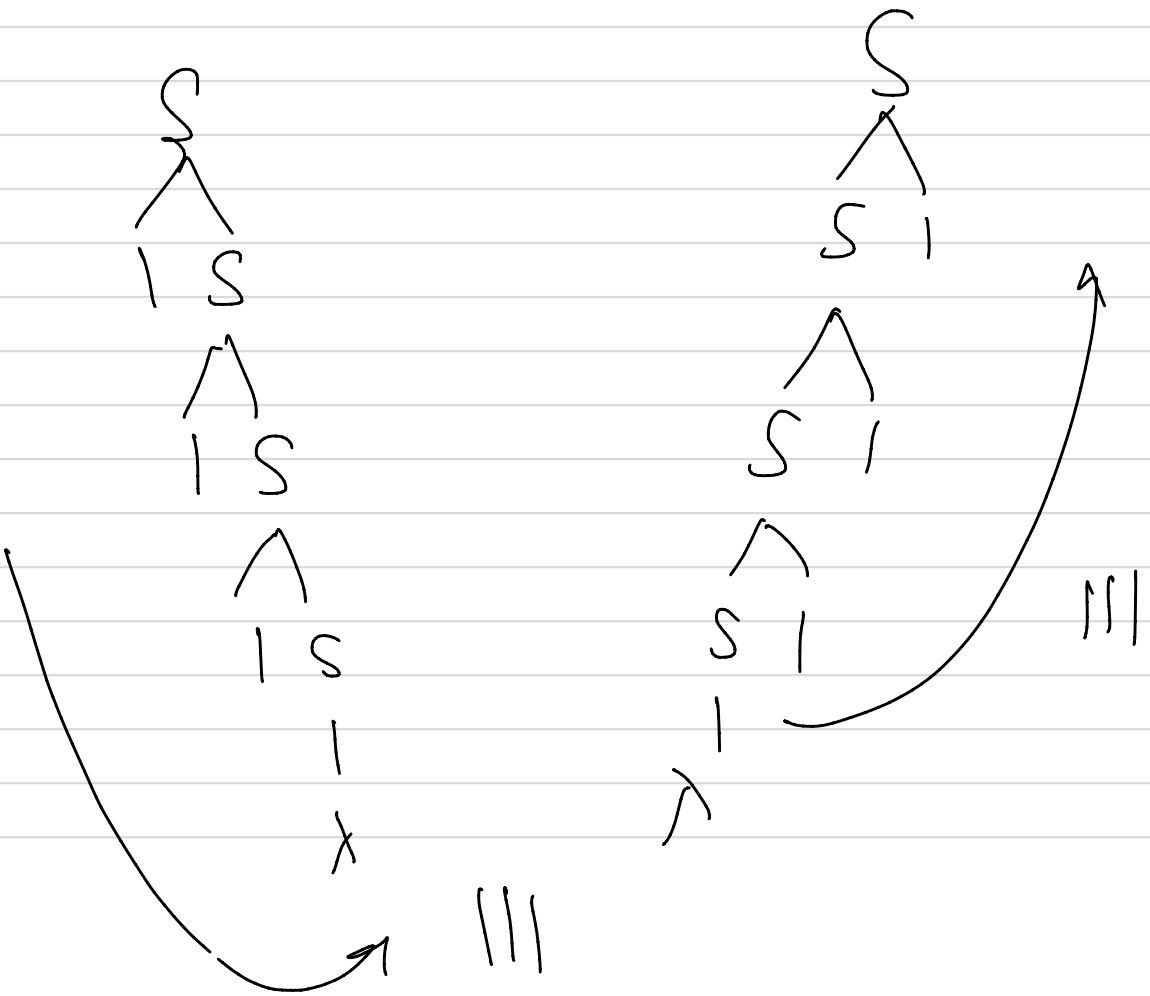
none

Language: $\{1^n \mid n \in \mathbb{N}\} = \{\lambda, 1, 11, 111, \ldots\}$

$S \rightarrow \lambda \mid 1S$

or

$S \rightarrow \lambda \mid S1$



L : zero or 1

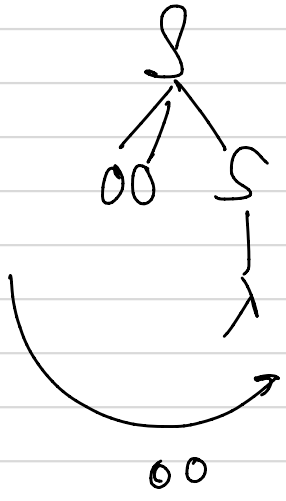
$S \to 0 \mid 1$

bitstrings even length of 0.

λ , 00 , 0000 , ----

0 2 4

$S \to \lambda \mid 00S$



$S \rightarrow 00S \rightarrow 0000S \rightarrow 0000$

4

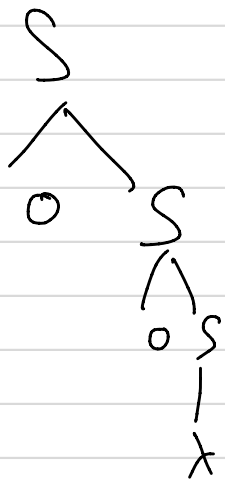
$S \rightarrow 00S \rightarrow 0000S \rightarrow 000000S \rightarrow 000000$

6

$\vdots$

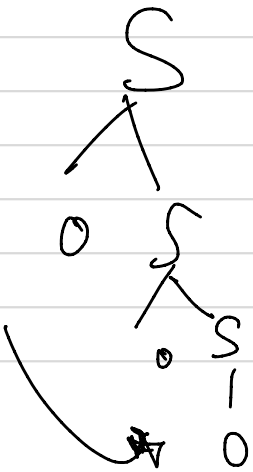
$L = \{\lambda, 0, 00, 000, \ldots\}$

$S \rightarrow \lambda \mid 0S$



$L = \{0, 00, 000, 0000, \ldots\}$

$S \rightarrow 0 \mid 0S$



$$S \rightarrow \lambda \mid 0S$$

$$S \rightarrow \lambda$$

$$S \rightarrow 0S \rightarrow 0\lambda = 0$$

$$S \rightarrow 0S \rightarrow 00S \rightarrow 00\lambda$$

$$\{\lambda, 0, 00, 000, \ldots\}$$

$$L = \{0^n \mid n \in N\}$$

$L = \{0, 00, 000, \ldots\}$ all no λ

$L = \{\lambda, 0, 00, 000, \ldots\}$ all includy λ

$L = \{0^n \mid n = 2k, k \text{ int}\}$ even # of 0's

$L = \{0^n \mid n = 2k+1, k \text{ int}\}$ odd # of 0's