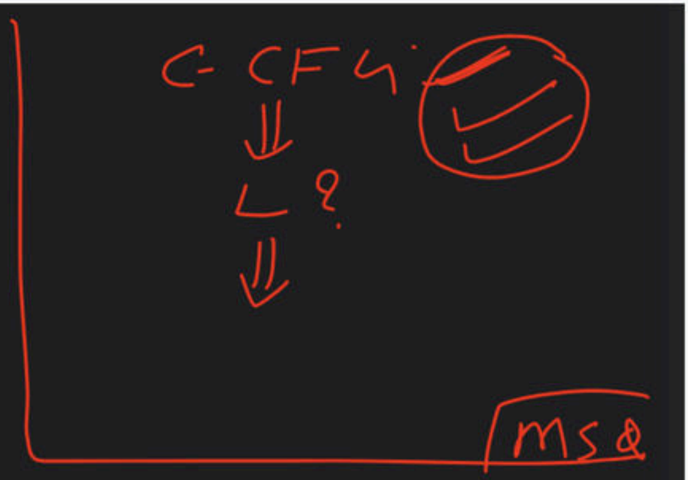
# Turing Machine - III

Complete Course on Theory of Computation

**Subbarao Lingamgunta** • Lesson 37 • Mar 25, 2022

CFL $\Leftrightarrow$ CFG ✓ (LMSP SV)

PDA





## PDA construction

PDA = FA + 1-stack

PDA $M = (Q, \Sigma, \delta, S, F, K, Z_0)$

- $Q, \Sigma, \delta, S, F$ — FA
- $K$ — Stack Alphabet
- $Z_0$ — Initial Top of stack

$Z_0 \in K$

$L_1 = \{a^{100}\} \Rightarrow$ RL ✓

RL ✓
⇓
CCL ✓
CSL ✓
REL ✓

$L_2 = \{a^m b^n / m, n \geq 0\}$

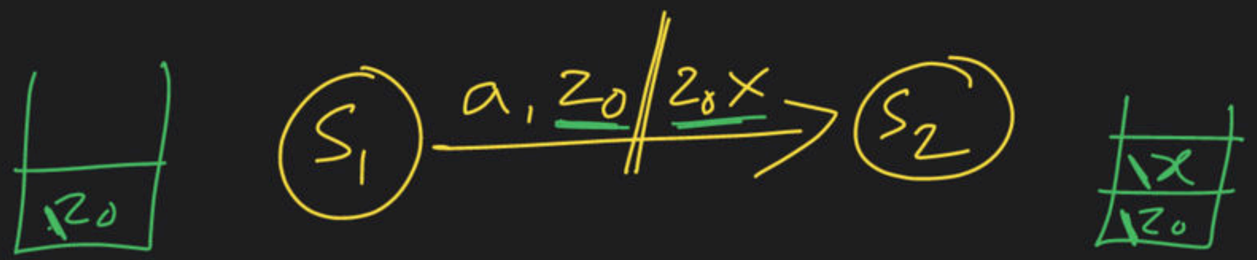
$\$, \#, Z, Z_0$

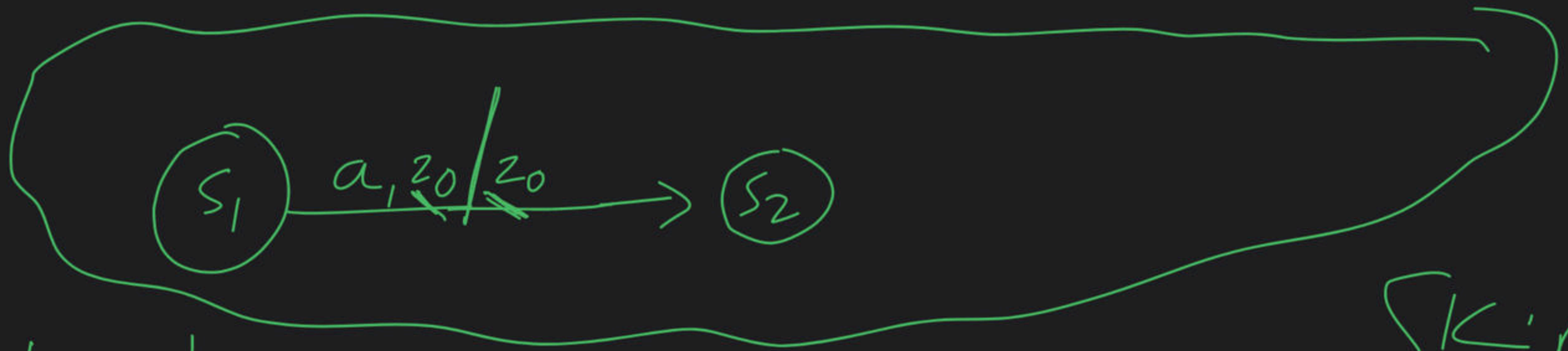
Suppose on $S_1$ state a as i/p and top of the stack is $Z_0$ then go to $S_2$ and push X in stack.

(or)

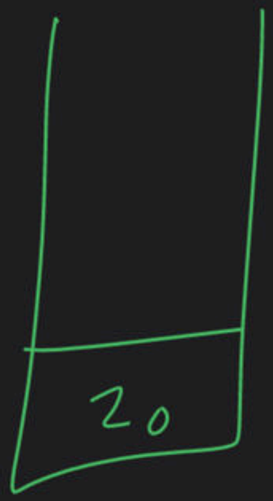
$$\delta(S_1, a, Z_0) = (S_2, Z_0X)$$

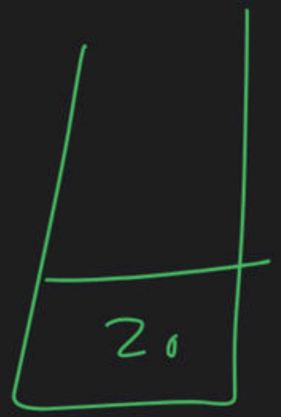
(or)





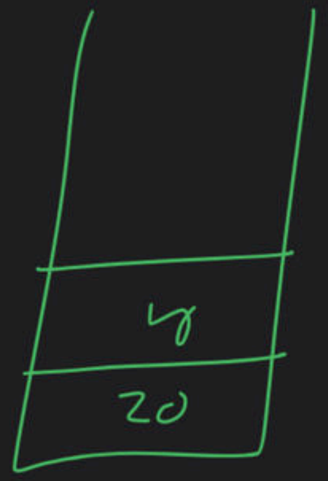

Skip




$a^m b^n$ /






POP

ex

10-15

RRR