

CPSC 421/501 Oct 16, 2023

- Finish Myhill-Nerode:

DIV-BY-3-ONLY-1-0

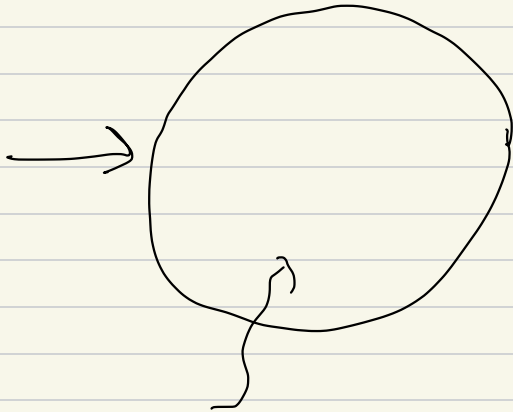
$$= \{ 0, 111, 1011, 1101, 1110, \dots \}$$

$$= \left\{ \omega \in \{0,1\}^* \mid \begin{array}{l} \omega = 0, \text{ or } \omega \text{ begins} \\ \text{in } 1, \text{ and has its} \\ \text{number of } 1\text{'s divisible} \\ \text{by } 3, \text{ i.e. } \equiv 0 \pmod{3} \end{array} \right\}$$

$$a \equiv b \pmod{3} \Leftrightarrow (a \bmod 3) = (b \bmod 3)$$

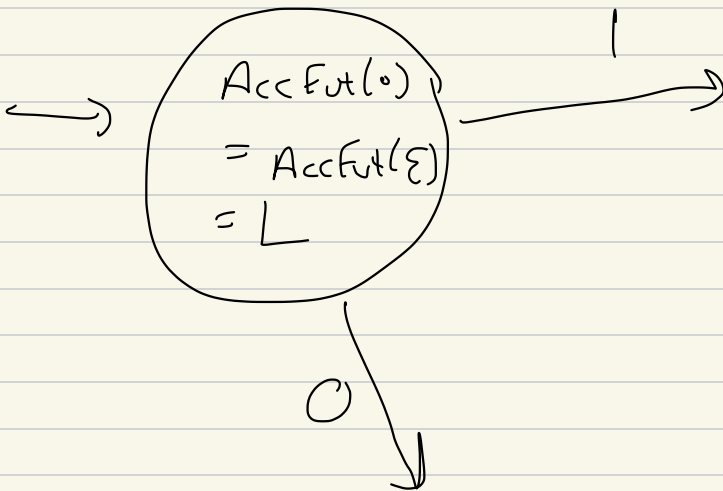
- Maybe start Turing
machines (Ch. 3 [Sip])

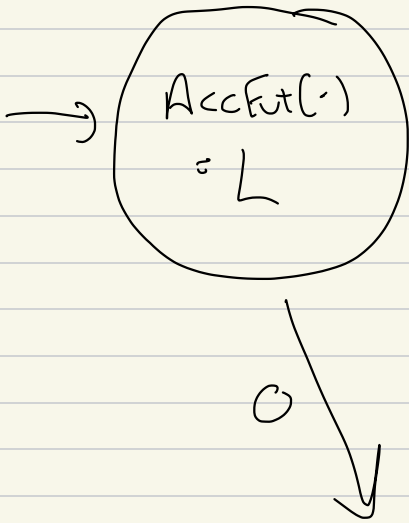
$$\text{DIV-BY-3-ONLY-1-0} = \{0, 111, 1011, 1101, \dots\}$$



Initial state,
is where
 ϵ is taken
to

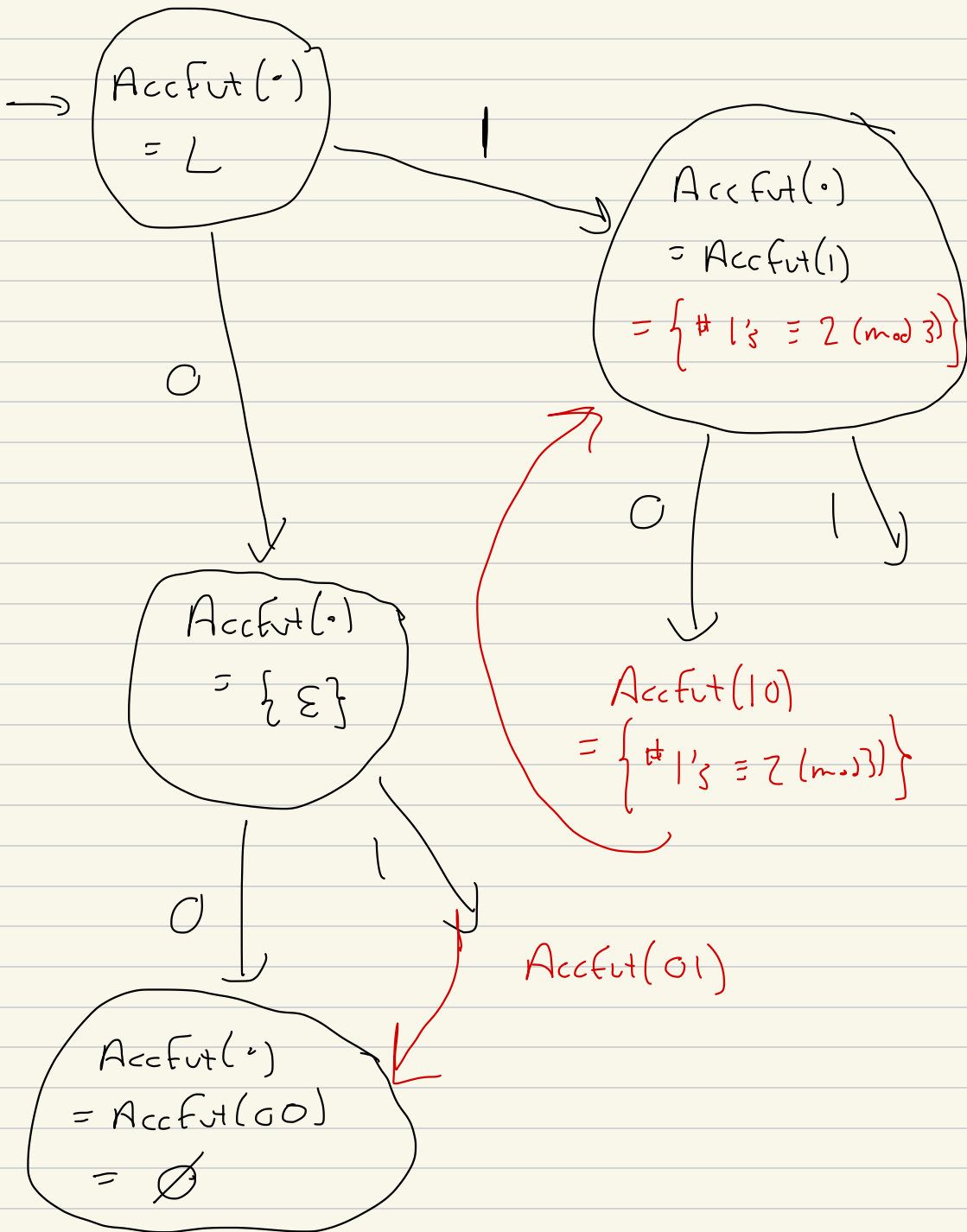
$$\text{AccFut}(\cdot) = \text{AccFut}(\epsilon) = L$$

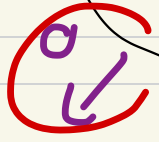
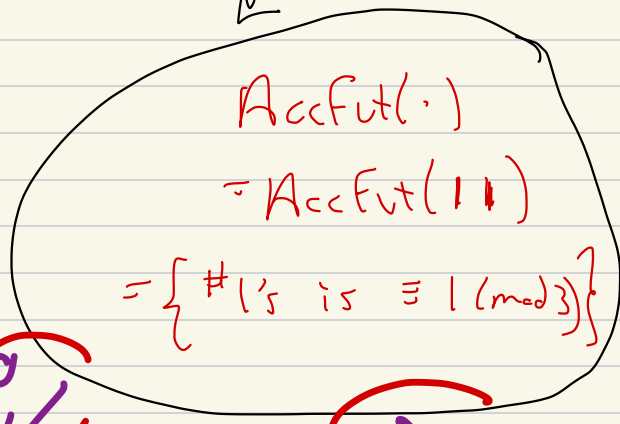
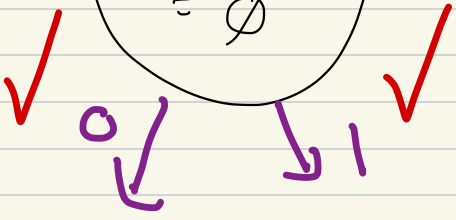
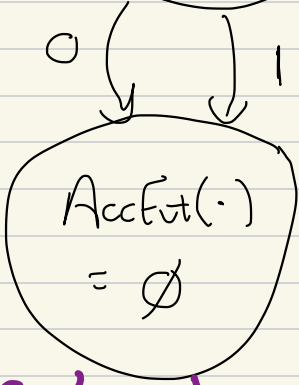
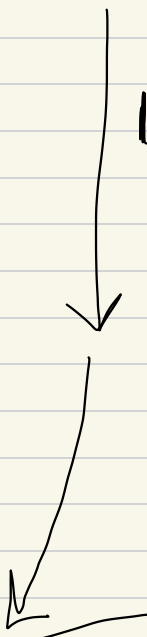
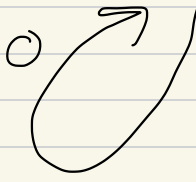
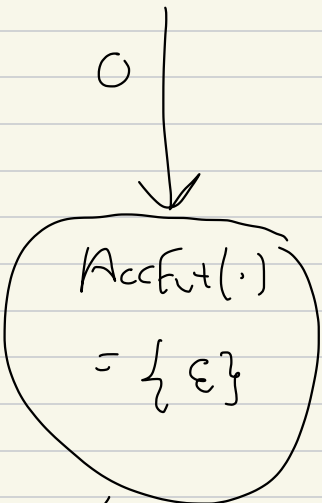
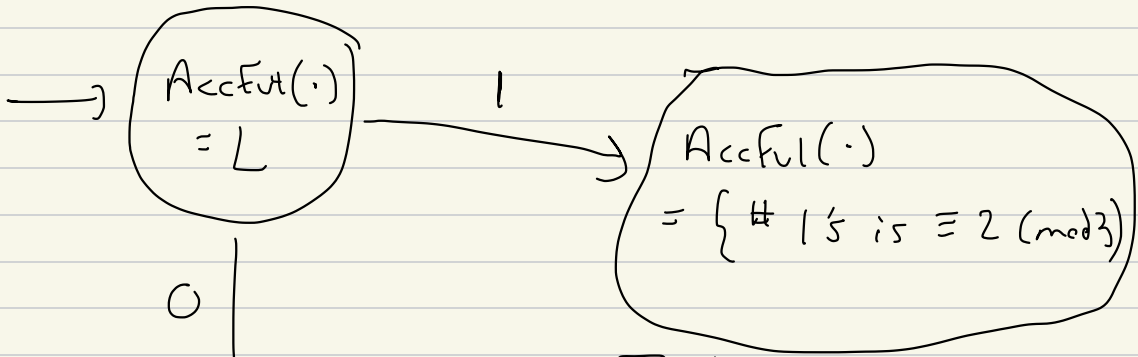




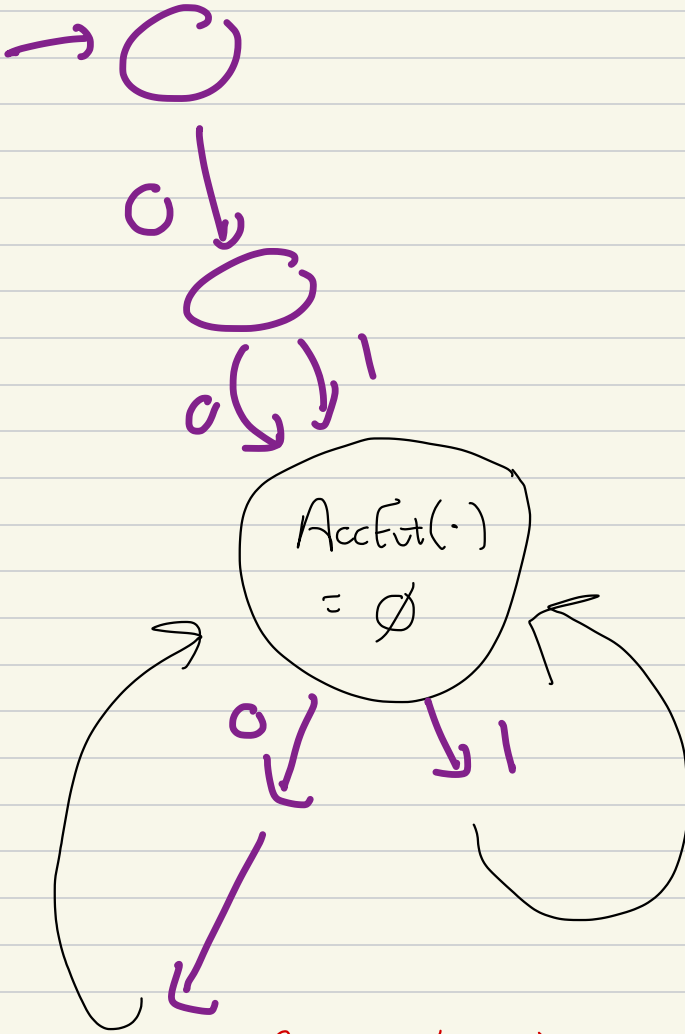
$$\begin{aligned}
 & \text{AccFut}(\cdot) \\
 &= \text{AccFut}(0) \\
 &= \{ s \mid 0s \in L \} \\
 &= \{ \varepsilon \} : 0\varepsilon = 0 \in L \\
 & \quad 0(\text{anything non-empty}) \notin L
 \end{aligned}$$

$$\text{AccFut}_L(1) = \left\{ w \in \{0,1\}^* \mid \begin{array}{l} \#1\text{'s in } w \\ \equiv 2 \pmod{3} \end{array} \right\}$$



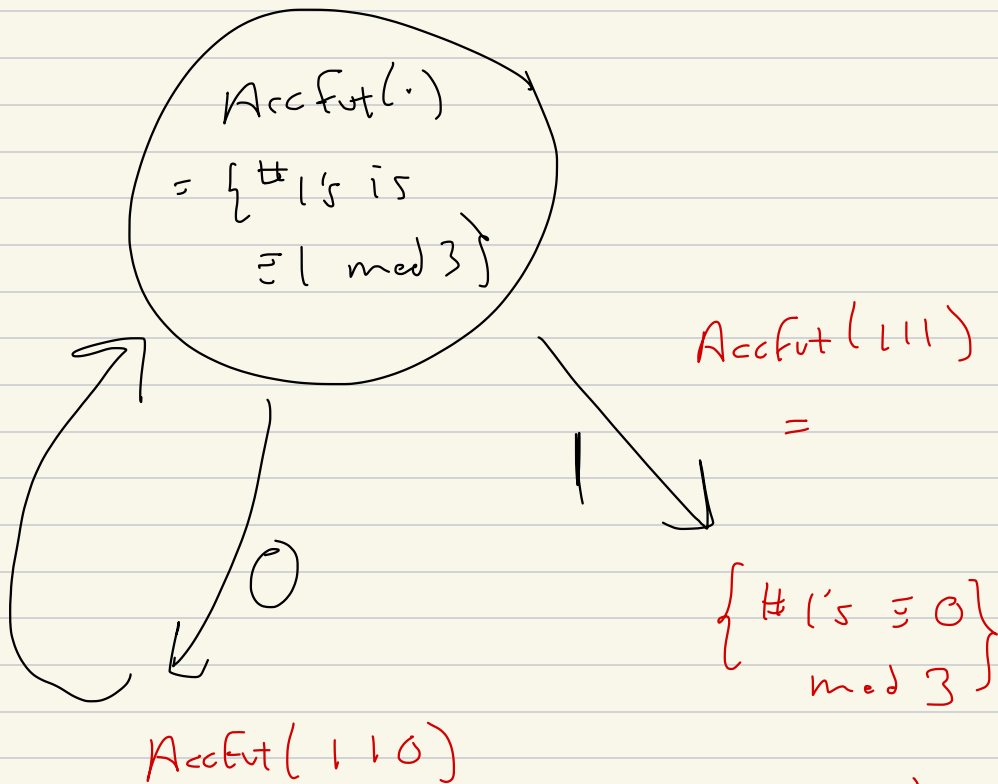


To Do:



$AccFut(000)$

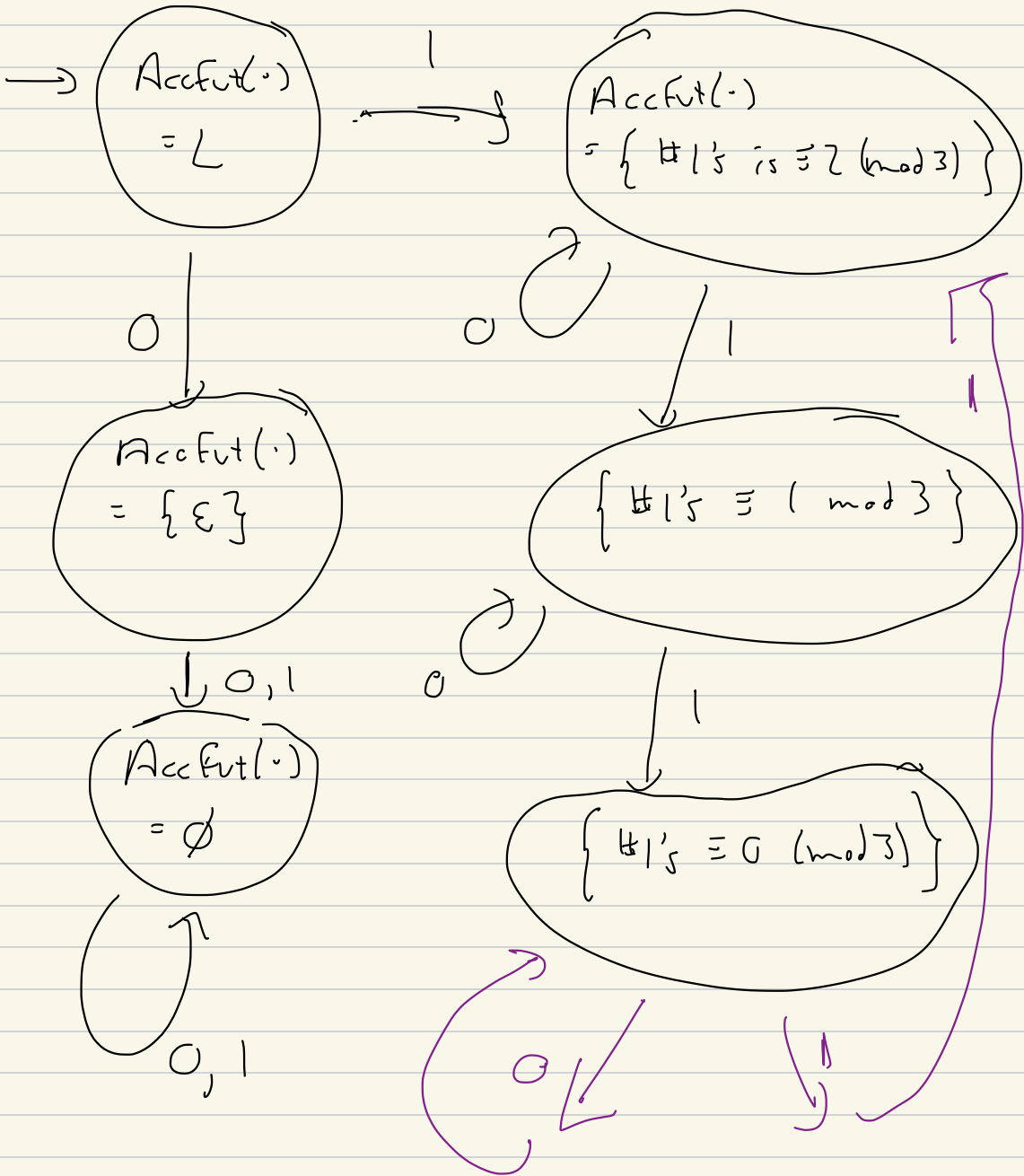
$=$



$$L = \{ 0, 111, 1011, \dots \}$$

does not
 contain 0111

contains
 0111



Class Ends ~ ~ ~