

# CES547T - M2

467261 - Yifu Wang

2018 - 10 - 01

**2.13** Let  $L = L_1 \cap L_2 = \{x \in (a+b)^* \mid x \text{ end with } ab \text{ and contains no } aa \text{ substring.}\}$ . Let  $S = \{\Lambda, a, aa, ab\}$ .  $S$  is a pairwise  $L$ -distinguishable set since:

- $ab$  is distinguishable with  $\Lambda, a, aa$  by  $\Lambda$ .
- $a$  is distinguishable with  $\Lambda, aa$  by  $b$ .
- $\Lambda$  is distinguishable with  $aa$  by  $ab$ .

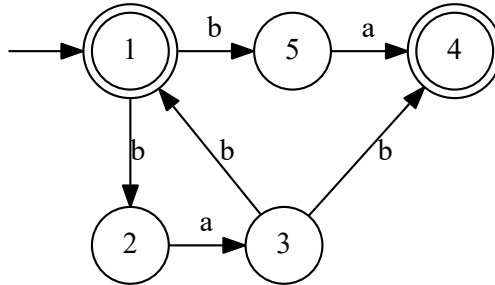
Then apply **Theorem 2.21**, any FA accepts  $L$  should have at least 4 states.

**2.17(a)**  $\Lambda$  and  $a$  is not  $L$ -distinguishable since:

Provide a  $z \in (a+b)^*$

- if  $z \in L$ ,  $az \in L$ .
- if  $z \notin L$ ,  $az \notin L$ .

**3.37(a)**



**3.37(c)**

