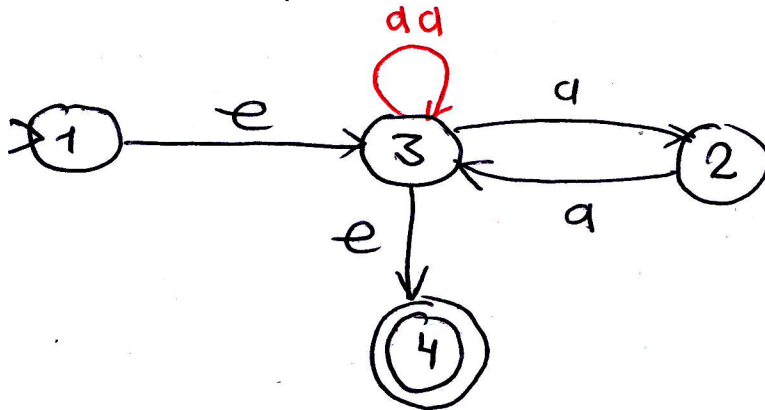
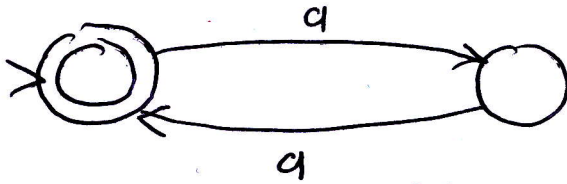


Problem class 3, 2019

1)

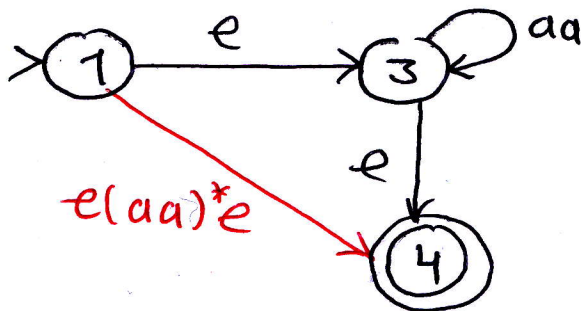
$$\{a^n \mid n \text{ is even}\} \subset \Sigma^* = \{a\}^*$$



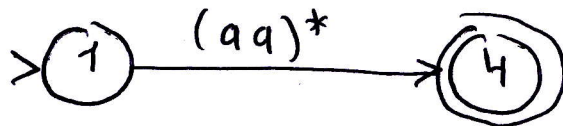
different labelling

$$i=2 : j=3, k=3$$

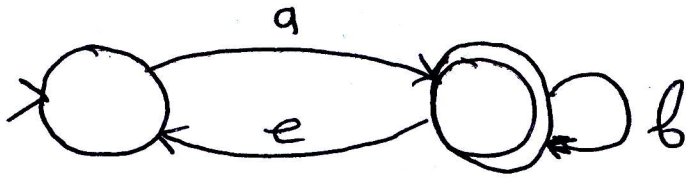
~~no~~ no other possibilities for j, k .



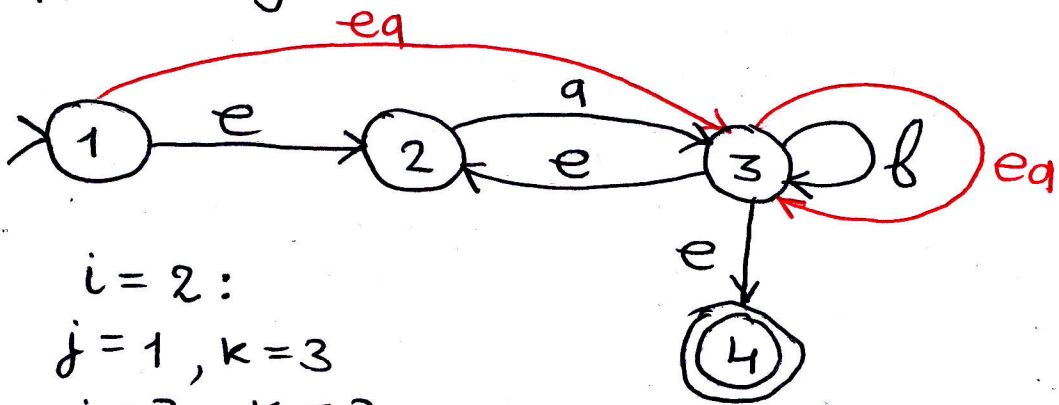
$$i=3 : j=1, k=4$$



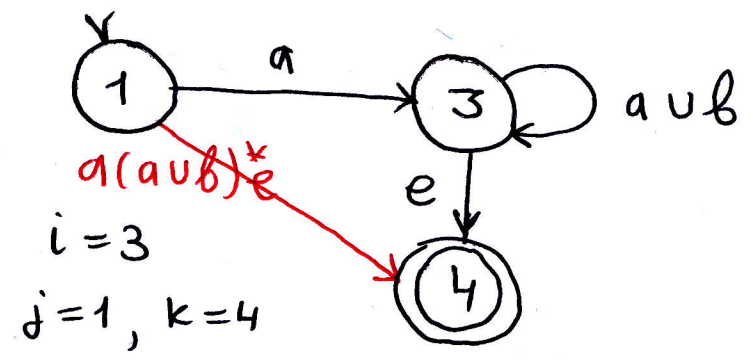
2) Language of words aw , where $w \in \{a, b\}^*$



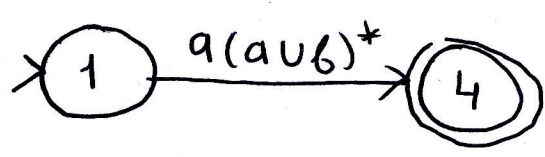
Pre-processing:



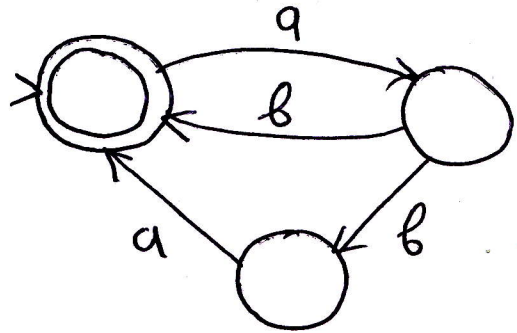
$i = 2$
 $j = 1, k = 3$
 $j = 3, k = 3$



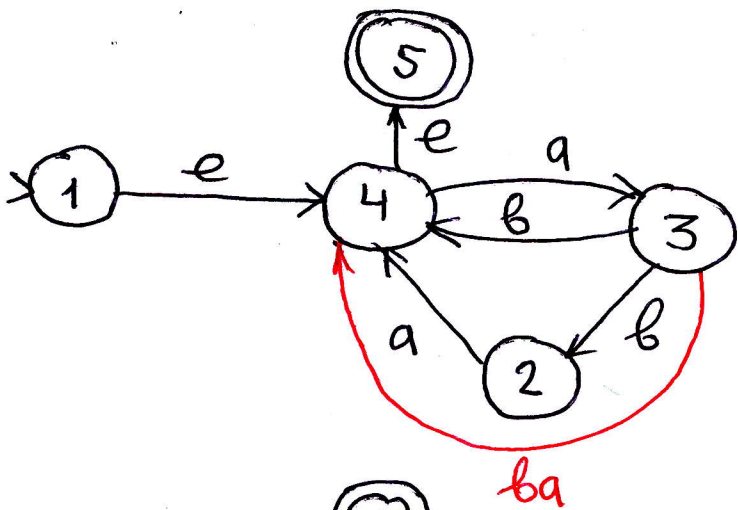
$i = 3$
 $j = 1, k = 4$



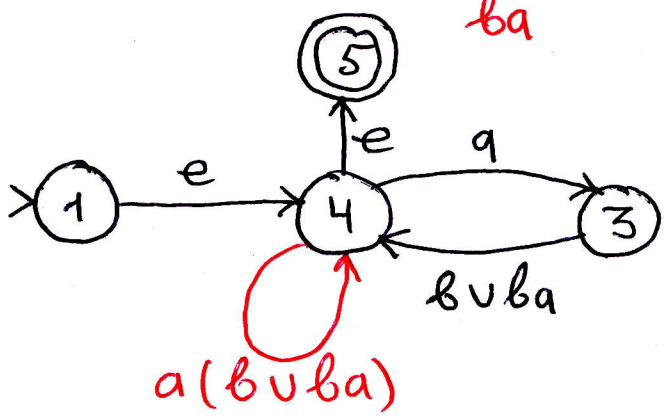
3) Language of concatenations of ab, aba in $\{a, b\}$



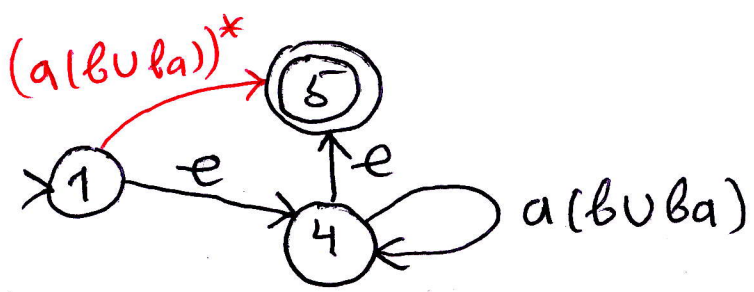
pre-processing:



$i=2:$
 $j=3, k=4$



$i=3:$
 $j=4, k=4$



$i=4$
 $j=1, k=5$

$(a(buba))^* \rightarrow (ab \cup aba)^*$