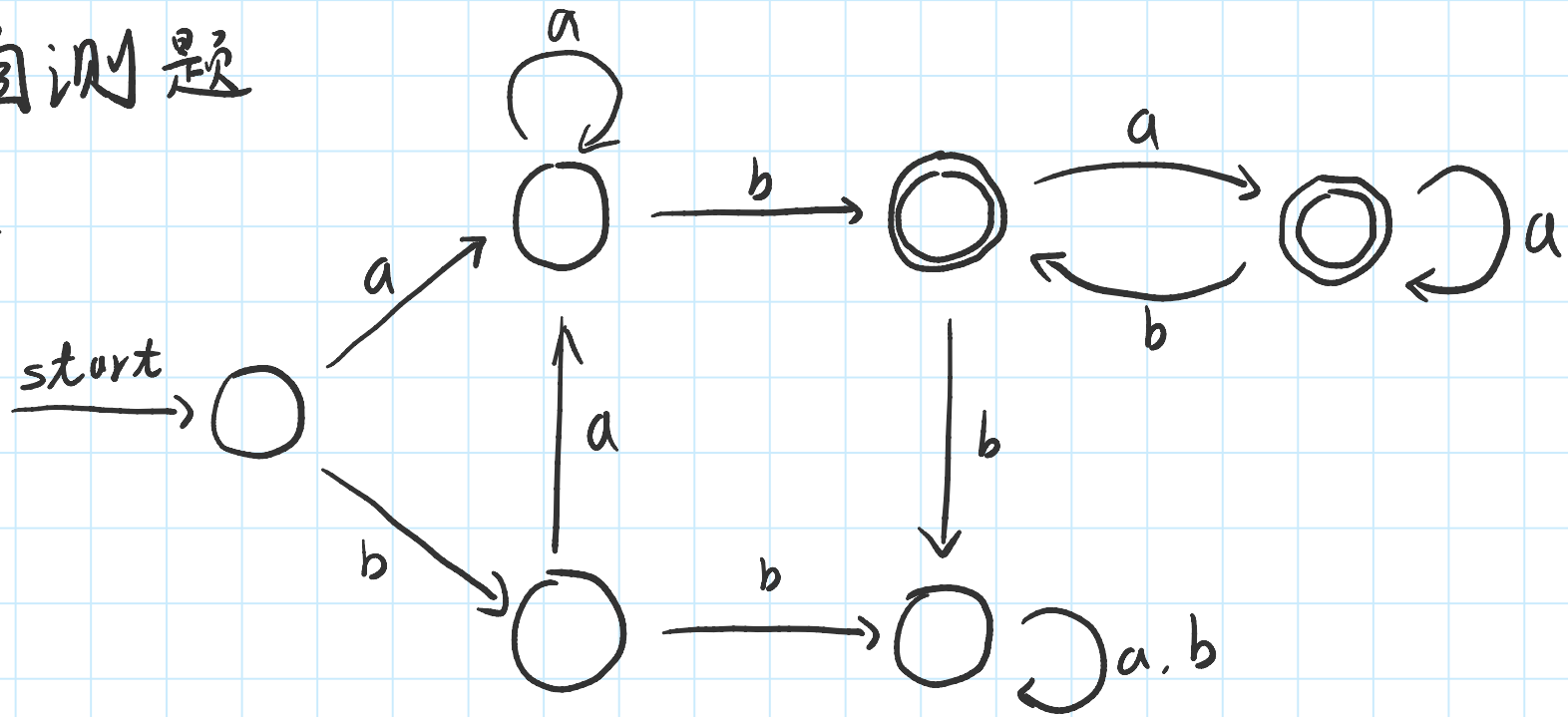
Week 7

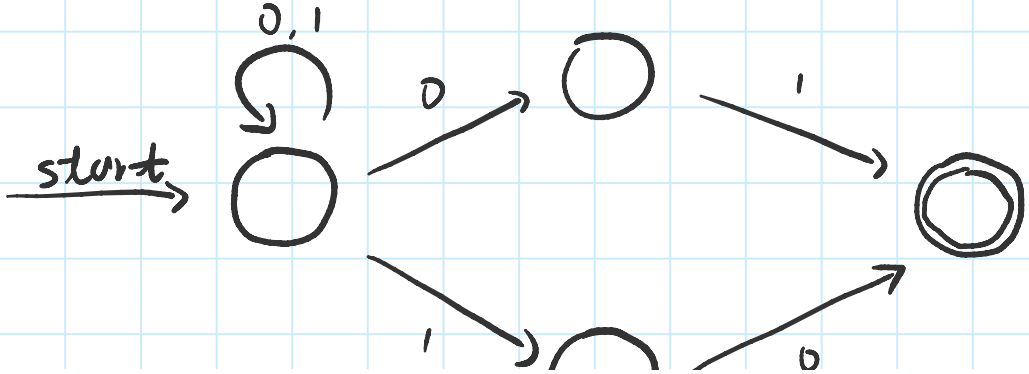
Thursday, April 11, 2019 8:02 AM

自测题

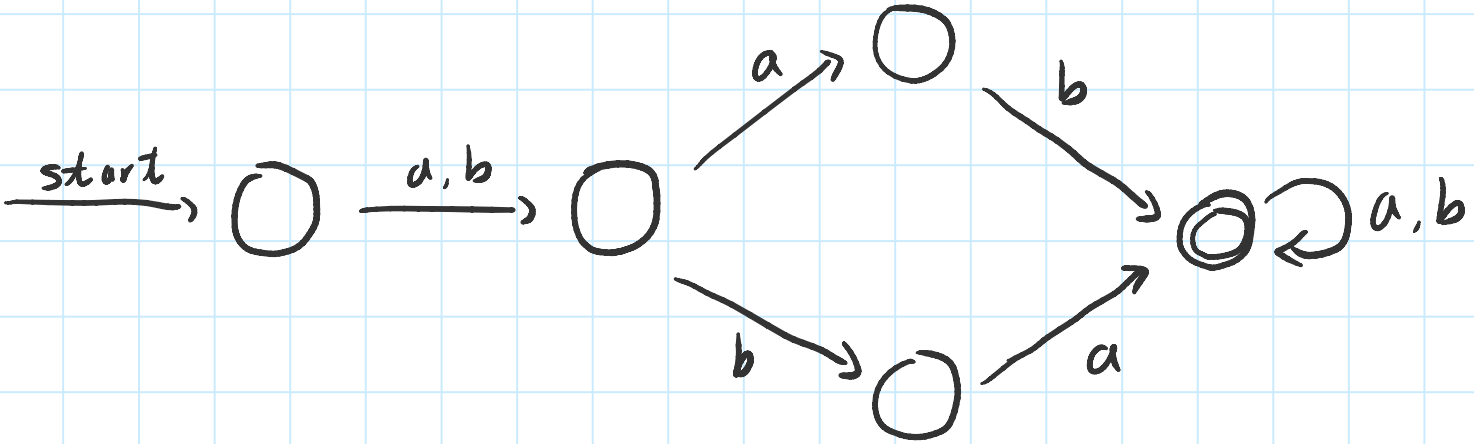
6.



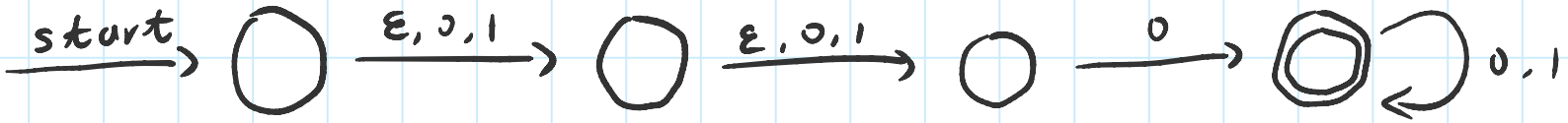
一.



一.

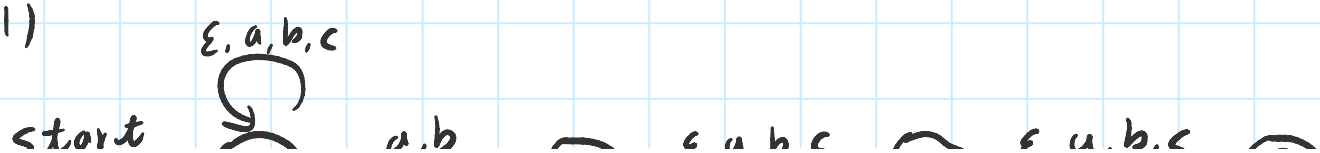


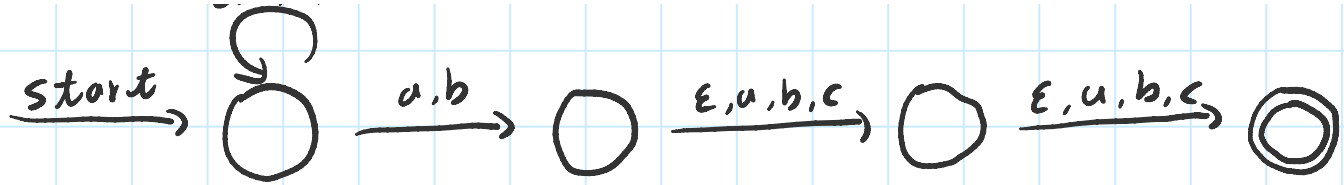
一.



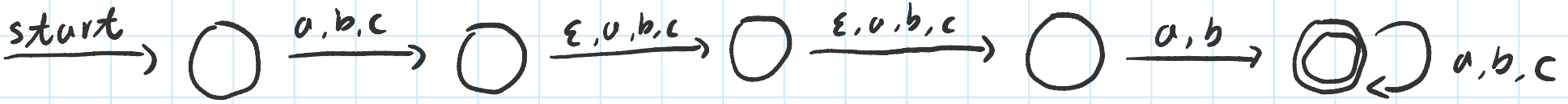
一、

(1)



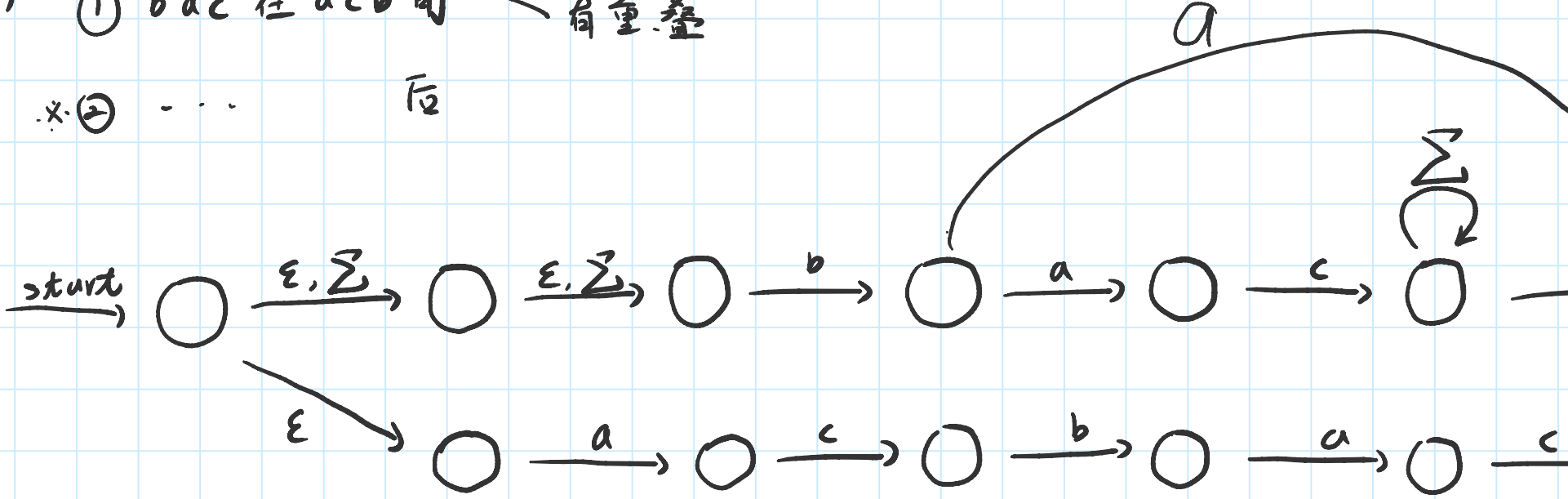


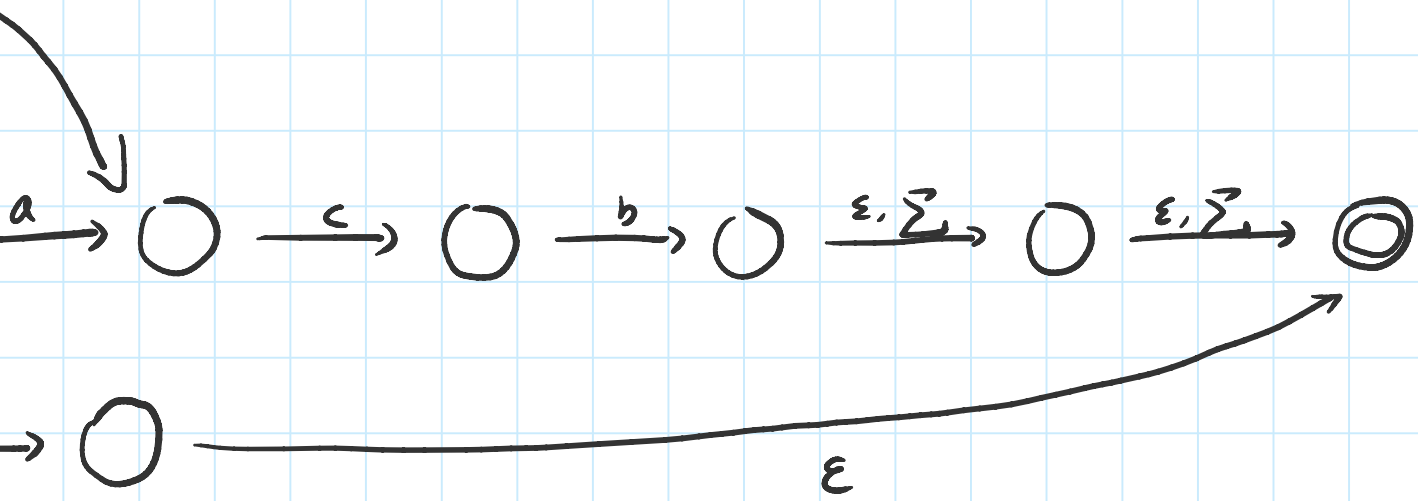
(2)



(3) ① bac 在 acb 前 < 不重叠 / 有重叠

※ ② ... 后




a
c
b
ε, Σ
ε, Σ
ε

一、

2	×				
3*		×			
4	×	×	×		
5	×	×	×		
6*	×	×	×	×	×
	1*	2	3*	4	5

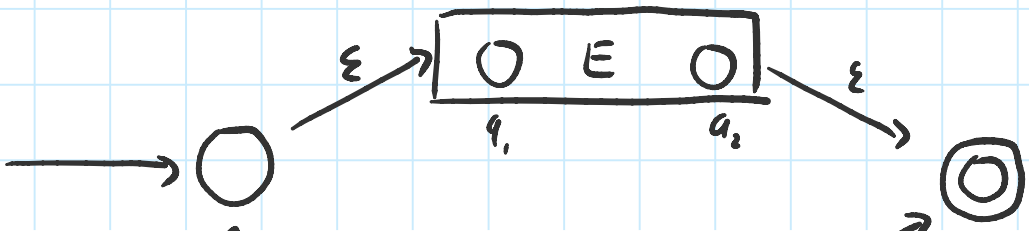
G = E + F，令构造出的 ε-NFA 为 M，证明 L(E+F) = L(M)

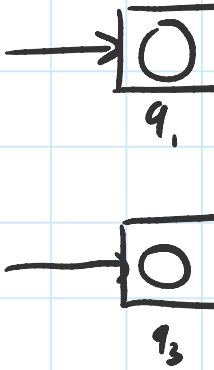
令 n 为正规表达式中运算符的数量，假设 n=k 时成立，有在

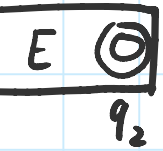
$M_E = (Q_1, \sum, \delta_1, q_1, \{q_2\})$

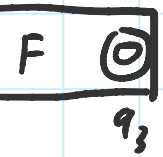
$M_F = (Q_2, \sum, \delta_2, q_3, \{q_4\})$

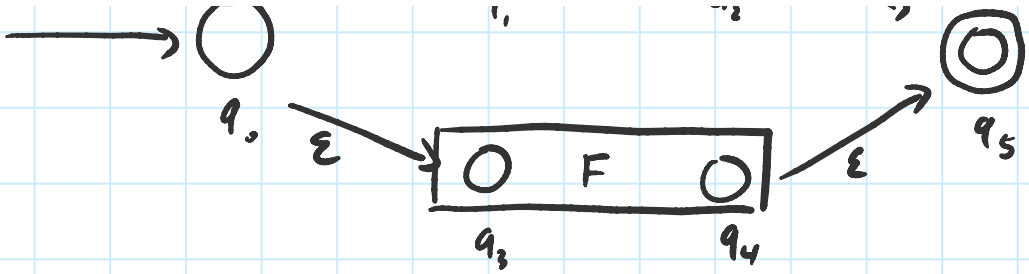
$L(M_E) = L(E)$，$L(M_F) = L(F)$，$Q_1 \cap Q_2 = \phi$






E
q_2


F
q_3



对 $q_0, q_5 \notin Q_1 \cup Q_2$，令 $M = (Q_1 \cup Q_2 \cup \{q_0, q_5\}, \sum, \delta, q_0, \{q_5\})$

δ 的定义：① $\delta(q_0, \varepsilon) = \{q_1, q_3\}$

② $\forall q \in Q_1 - \{q_2\}, a \in \sum \cup \{\varepsilon\}. \ \delta(q, a) = \delta_1(q, a)$

$\forall q \in Q_2 - \{q_4\}, a \in \sum \cup \{\varepsilon\}. \ \delta(q, a) = \delta_2(q, a)$

③ $\delta(q_2, \varepsilon) = \{q_5\}$

④ $\delta(q_4, \varepsilon) = \{q_5\}$

① 证 $L(M_E) \cup L(M_F) \subseteq L(M)$

设 $x \in L(M_E) \cup L(M_F)$，则 $x \in L(M_E)$ 或 $x \in L(M_F)$

当 $x \in L(M_E)$ 时，

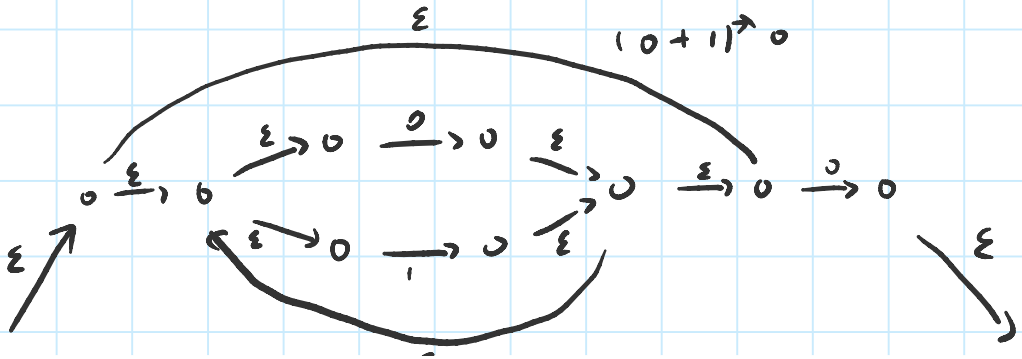
$\delta'(q_0, x) = \delta'(q_0, \varepsilon x) =$ ④ 的定义

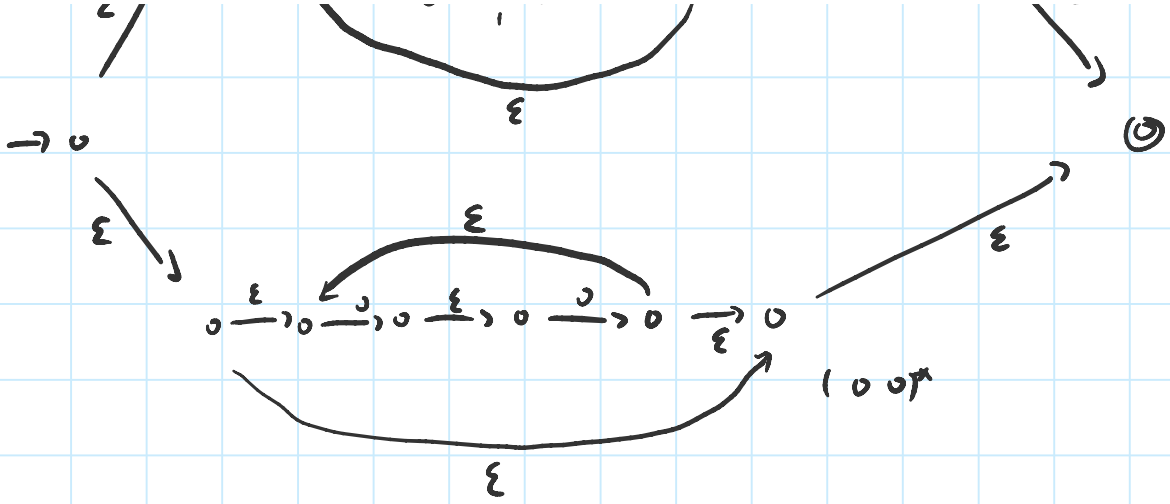
$\Rightarrow x \in L(ME)$

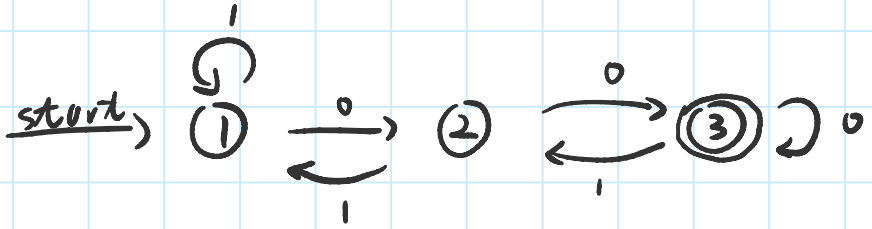
$$\delta'(q_0, x) = \delta'(q_0, \varepsilon x \varepsilon) \quad // \varepsilon \text{的定义}$$
$$= \delta'(\delta(q_0, \varepsilon), x\varepsilon) \quad // \delta' \text{的定义}$$
$$= \delta'(\{q_1, q_3\}, x\varepsilon)$$
$$= \delta'(q_1, x\varepsilon) \cup \delta'(q_3, x\varepsilon)$$
$$= \delta'(\{q_2\}, \varepsilon) \cup \delta'(q_3, x\varepsilon)$$
$$= \{q_5\} \cup \delta'(q_3, x\varepsilon)$$

$x \in L(M)$

$(0+1)^*0 + (00)^*$







$R_{11}^{(0)}$ $\quad \varepsilon + 1$

$R_{22}^{(0)}$ $\quad \varepsilon$

$R_{12}^{(0)}$ $\quad 0$

$R_{21}^{(0)} = 1$

$R_{13}^{(2)} = 0$