(b) słów nad alfabetem $\{0, 1\}$, w których w każdym podsłowie długości 3 występuje dokładnie raz symbol 0.

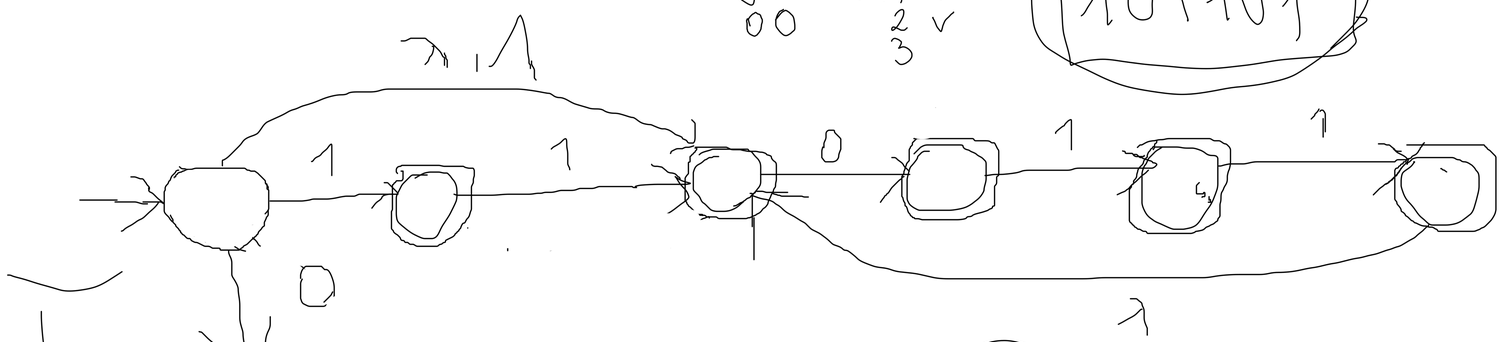
110 110

011

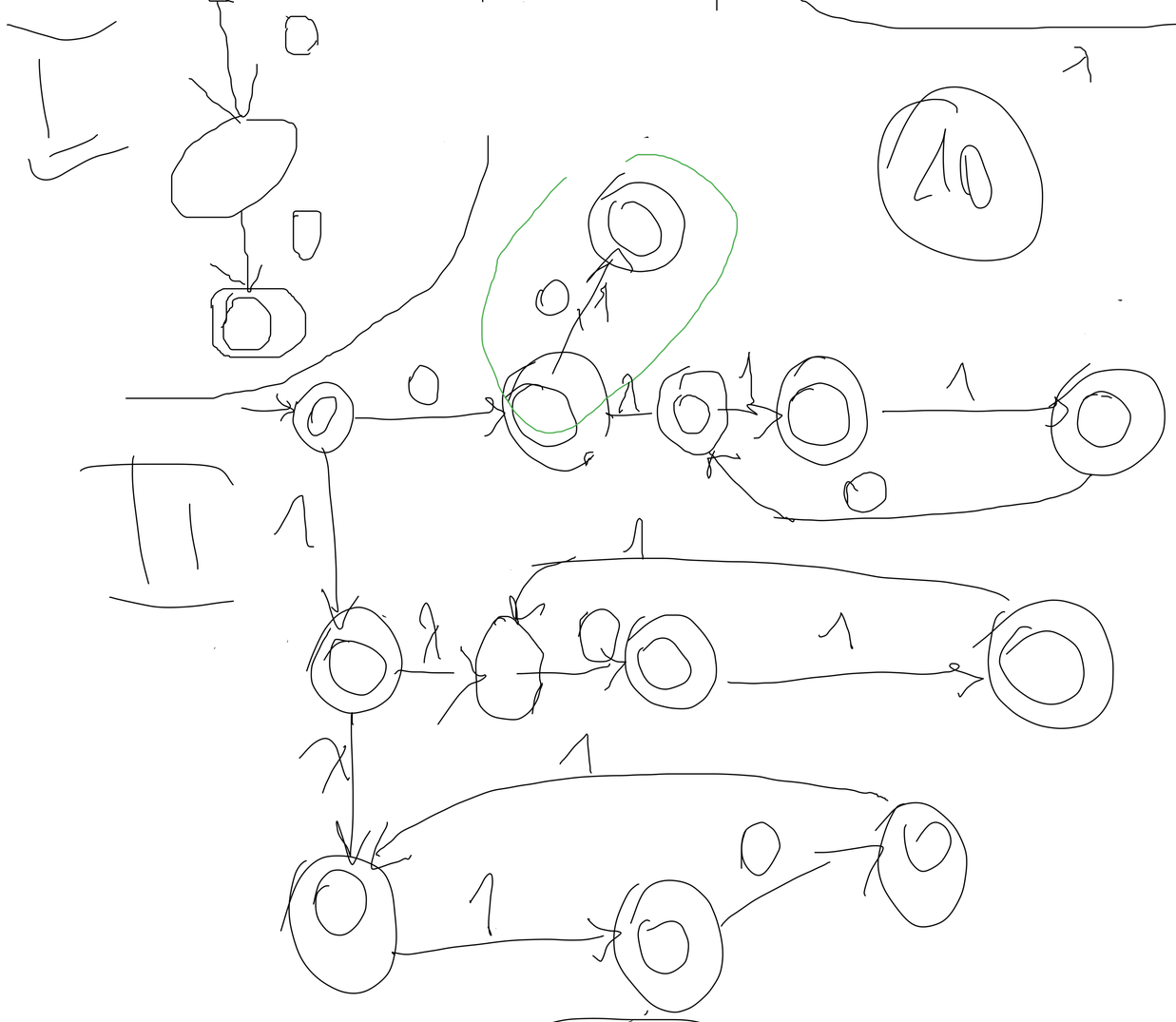
0
00

dł. 0 ✓
dł. 1 ✓
2 ✓
3

101101



I



II

~~1 0 1 1 1 0 1~~

0110
10110

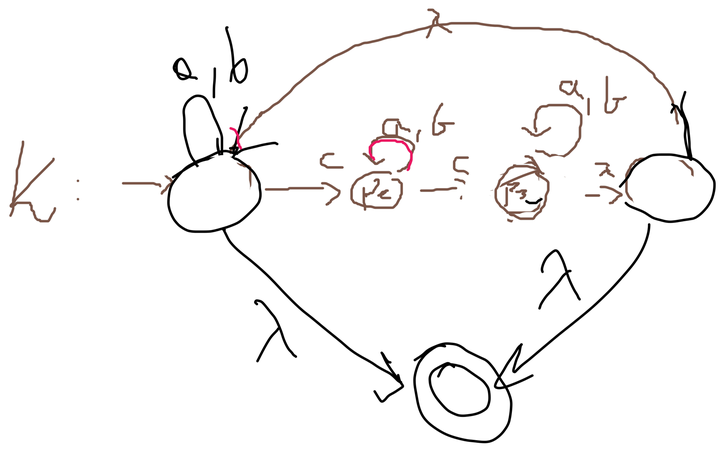
10

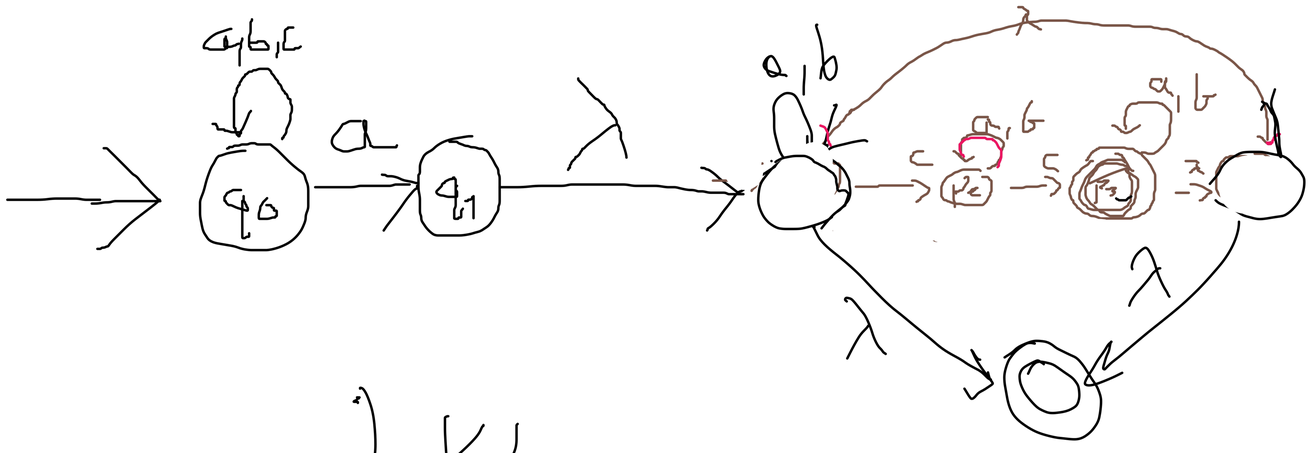
0
00
01
011011...
1
10
11
101101...
110110...

0110111

00
01

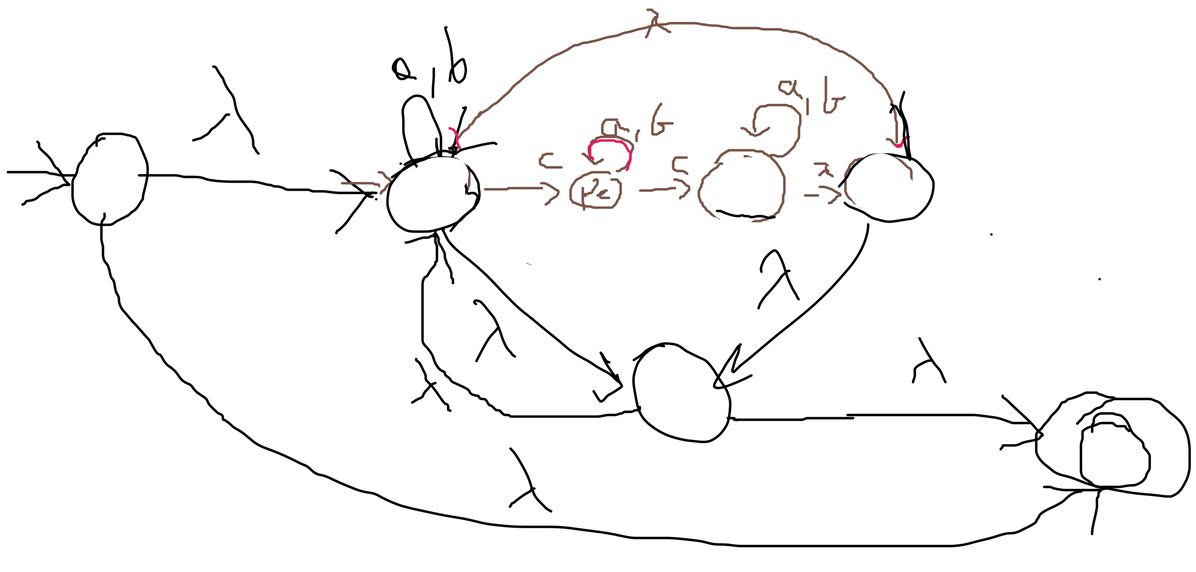
2. Przedstaw automat niedeterministyczny dla języka, będącego konkatenacją dwóch języków LK nad alfabetem $\{a, b, c\}$, gdzie L zawiera słowa kończące się literą a, zaś K słowa z parzystą liczbą liter c.





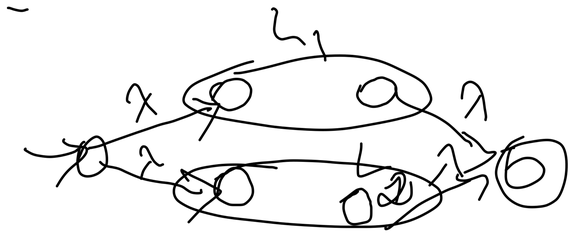
LK

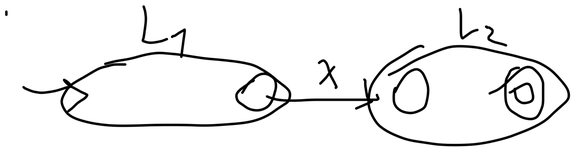
K^*

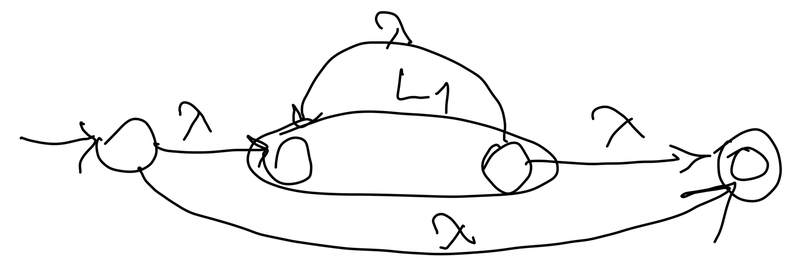


3. L_1, L_2 – reg –

to $L_1 \cup L_2$, $L_1 L_2$, L_1^* } reg.

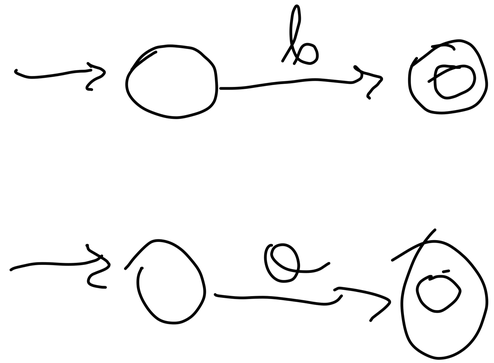


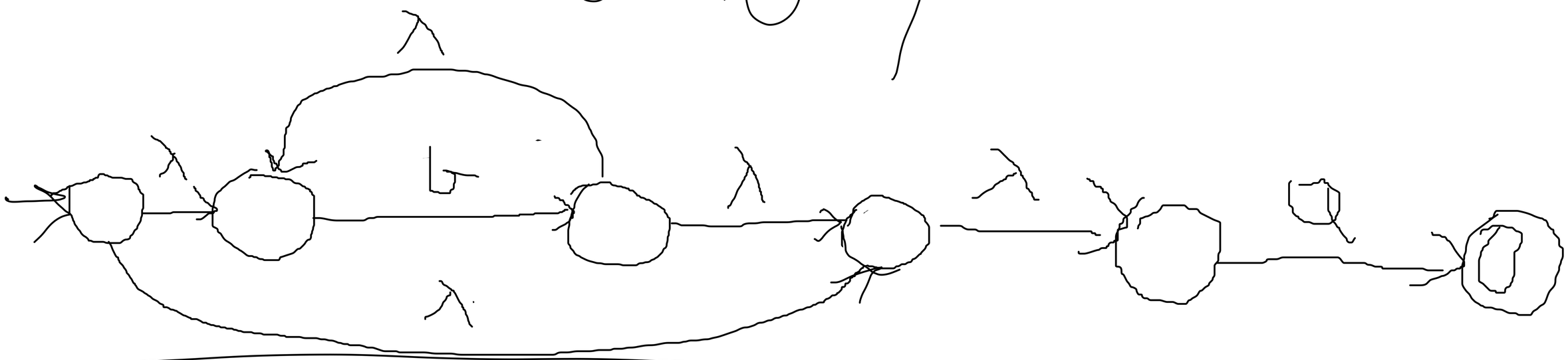




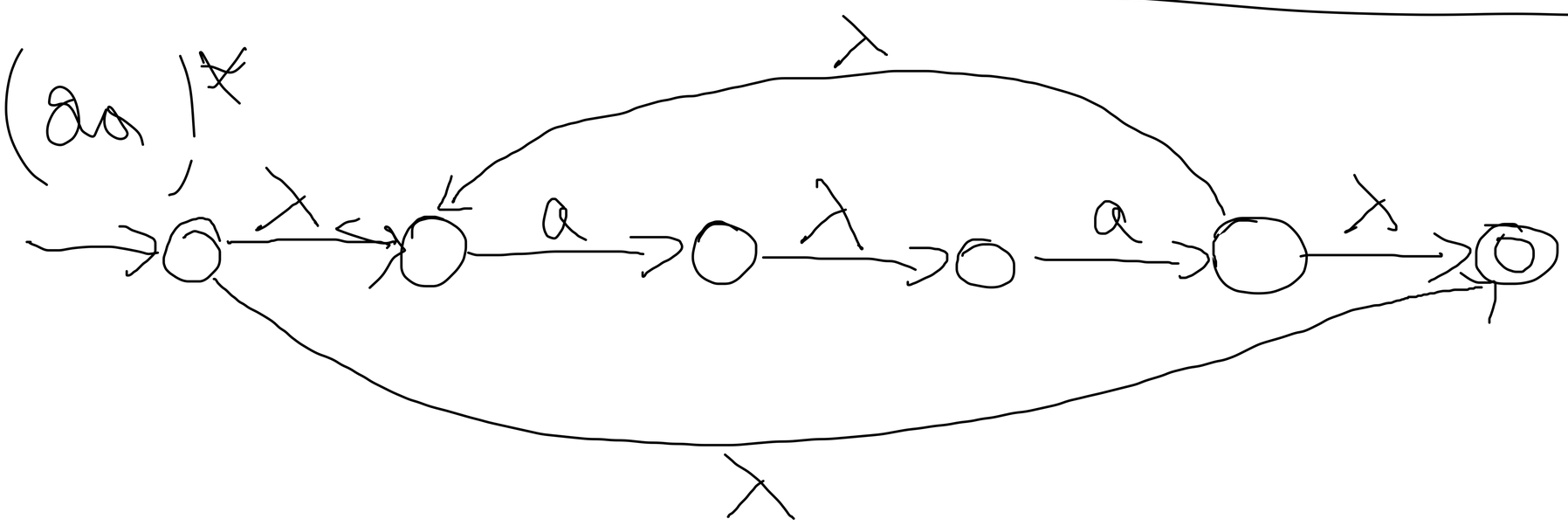
3. Wykorzysując tw. Kleene'ego podaj automaty akceptujące języki generowane przez wyrażenia regularne: b^*a, $(aa)^*$, $(a+b)(a+b)^*$.

b^*a



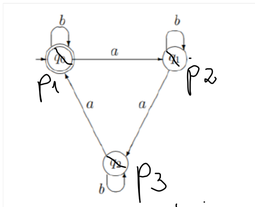


$(aa)^*$



Napisz wyrażenie dla automatu A_D z rysunku (skorzystaj z rekurencyjnego budowania wyrażeń r^k_{ij}).

$$R^k_{ij} = R^{k-1}_{ik}(R^{k-1}_{kk})^* R^{k-1}_{kj} \cup R^{k-1}_{ij}$$



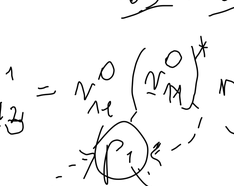
	$k=0$	$k=1$	$k=2$	$k=3$
r^k_{11}	$b+\lambda$	b^*		$\boxed{r^3_{11}}$
r^k_{12}	a	b^*a		
r^k_{13}	$\emptyset$	$\emptyset$		
r^k_{21}	$\emptyset$	$\emptyset$		
r^k_{22}	$b+\lambda$	$b+\lambda$		
r^k_{23}	a	a		
r^k_{31}	a	ab^*		
r^k_{32}	$\emptyset$	ab^*a		
r^k_{33}	$b+\lambda$	$b+\lambda$		

$$r^1_{11} = r^0_{11}(r^0_{11})^* r^0_{11} + r^0_{11}$$

$$= \underbrace{(b+\lambda)(b+\lambda)^*(b+\lambda)}_{b^*} + (b+\lambda) = b^*$$

$$b^* + b + \lambda$$

$$r^1_{13} = r^0_{11}(r^0_{11})^* r^0_{13} + r^0_{13}$$



$$= \underbrace{(b+\lambda)(b+\lambda)^*\emptyset}_{\emptyset} + \emptyset$$

$$r^1_{22} = r^0_{11}(r^0_{11})^* r^0_{12} + r^0_{22} =$$

$$= \emptyset + (b+\lambda) = b+\lambda$$