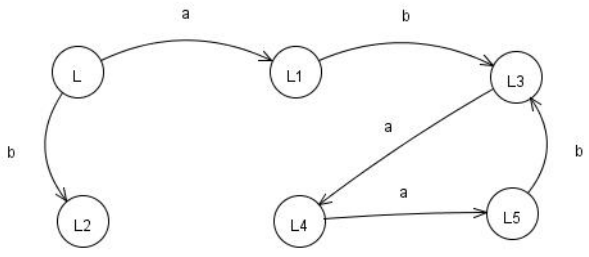
Zadatak 8. Napiši regularne izraze za sljedeće jezike
a) $L = \{w \in (0+1)^* |$ *nakon svake nule u riječi* w *nalaze se dvije jedinice*$\}$
b) $L = \{w \in (a+b+c)^* |$ c *se mora barem jednom pojaviti izmedu svakog pojavljivanja* a *i* $b\}$
c) $L = \{w \in (a+b+c)^* |$ *izraz* abc *mora se barem jednom pojaviti u riječi* $w\}$

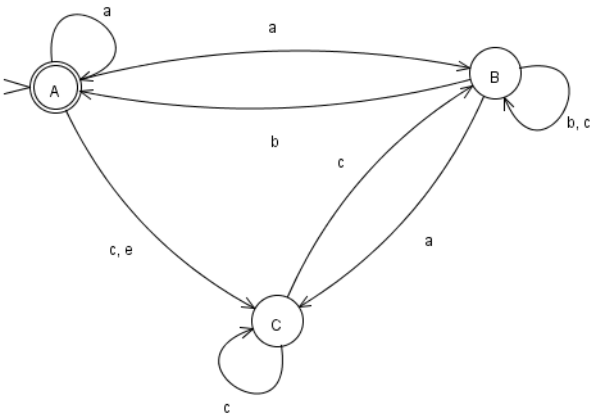
Rješenje:
a) $L = 1^*(011)^*1^*$.
b) $L = (a+c)^*(ac^+b)^*(b+c)^*$.
c) $L = (a+b+c)^*(abc)^+(a+b+c)^*$.

Zadatak 1. Za jezik $L = a + (aba)^*b$ treba pronaći najmanji DKA koji ga prepoznaje.

Rješenje:
$a^{-1}L = \varepsilon + ba(aba)^*b =: L_1$
$b^{-1}L = \varepsilon =: L_2$
$a^{-1}L_1 = \emptyset$
$b^{-1}L_1 = a(aba)^*b =: L_3$
$a^{-1}L_2 = \emptyset$
$b^{-1}L_2 = \emptyset$
$a^{-1}L_3 = (aba)^*b =: L_4$
$b^{-1}L_3 = \emptyset$
$a^{-1}L_4 = ba(aba)^*b =: L_5$
$b^{-1}L_4 = \emptyset$
$a^{-1}L_5 = \emptyset$
$b^{-1}L_5 = a(aba)^*b = L_3$

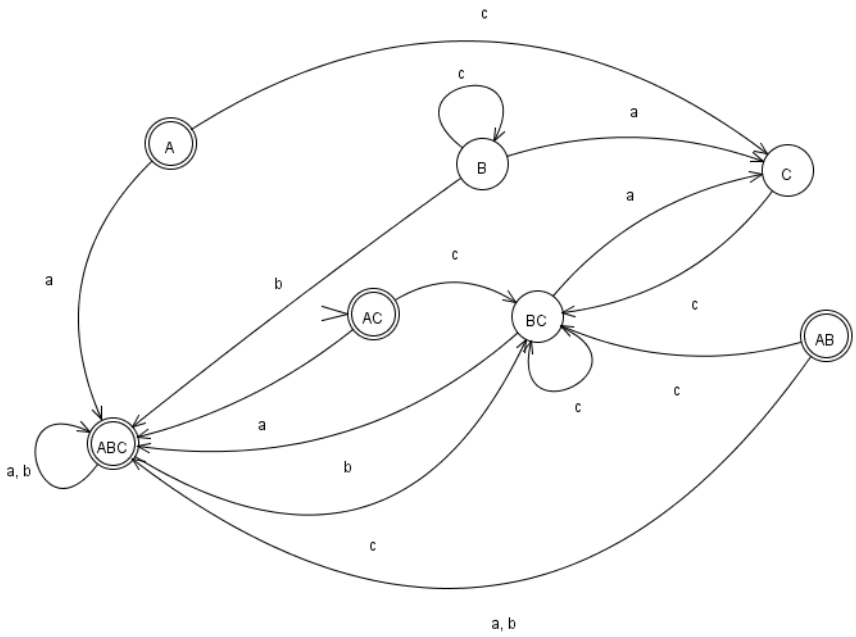


Zadatak 2. Zadani NKA prebaciti u ekvivalentni DKA.



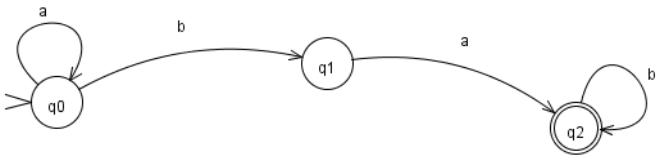
Rješenje:
NKA: $Q = \{A, B, C\},\ \sum = \{a, b, c\},\ \delta,\ F = \{A\},\ Q_0 = \{A, C\}$
DKA: $Q' = 2^Q,\ \sum = \{a, b, c\},\ F' = \{\{A\}, \{A, B\}, \{A, C\}, \{A, B, C\}\},$
$Q'_0 = \{AC\}$

δ'	A	B	C	AB	AC	BC	ABC
a	ABC	C	$\emptyset$	ABC	ABC	C	ABC
b	$\emptyset$	ABC	$\emptyset$	ABC	$\emptyset$	ABC	ABC
c	C	B	BC	BC	BC	BC	BC



Zadatak 3. Konstruiraj DKA koji prepoznaje jezik $L = a^*bab^*$, zatim pronadi DKA koji prepoznaje jezik L^c te pronadi regularan izraz za L^c.

Rješenje:



$L^c = a^*(\varepsilon + b + bb(a+b)^* + bab^*a(a+b)^*)$