171213063
Ali Berkan Bayram

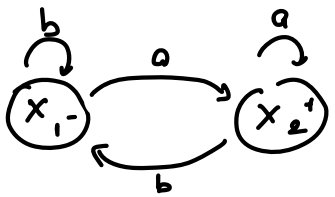
Otomata 2B. ödev

a şıkkı en son yapılmıştır. Sıfırın en sonunda yer almaktadır.

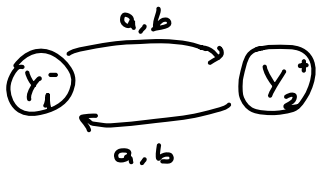
b) FA_1: "a"yla biten tüm kelimeleri kabul eder.
FA_2: Tek sayıda uzunlukta olan tüm kelimeleri kabul eder.

Alfabe: {a, b}

$FA_1 + FA_2$'ye karşılık gelen sonlu otomatayı oluşturunuz.



FA_1

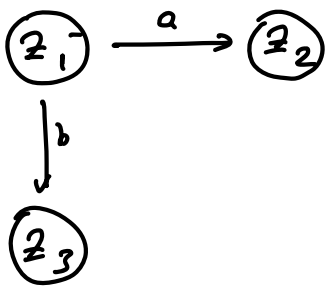


FA_2

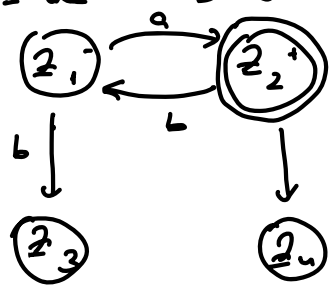
$Z_1^- = X_1$ or Y_1

- Z_1'de "a" okunursa X_2 or $Y_2 = Z_2$ final state
- Z_1'de "b" okunursa X_1 or $Y_2 = Z_3$ final state

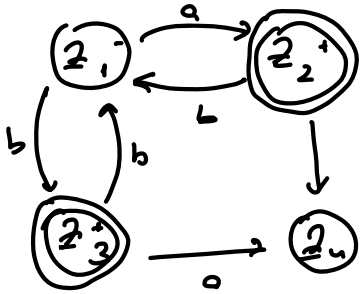
} olur ve



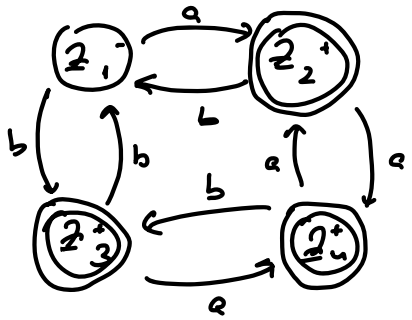
- Z_2'de "a" okunursa X_2 or $Y_1 = Z_4$ final state
- Z'de "b" okunursa X_1 or $Y_1 = Z_1$



- z_3'de "a" okunursa $\underline{x_2 \text{ or } Y_1 = z_4}$ final state
- z_3'de "b" okunursa $x_1 \text{ or } Y_1 = z_1$



- z_4'de "a" okunursa $X_2 \text{ or } Y_2 = z_2$
- z_4'de "b" okunursa $x_1 \text{ or } Y_2 = z_3$



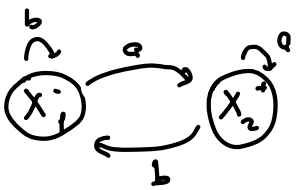
$\Rightarrow \underline{\underline{FA_1 + FA_2}}$

c) FA_1: "a" ile biten tüm kelimeleri kabul eder.

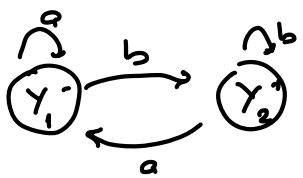
FA_2: "b" ile biten tüm kelimeleri kabul eder.

Al Fabe = {a, b}

$FA_1 + FA_2 = ?$



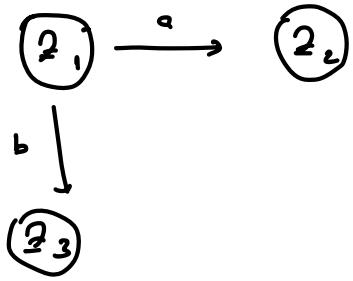
FA_1



FA_2

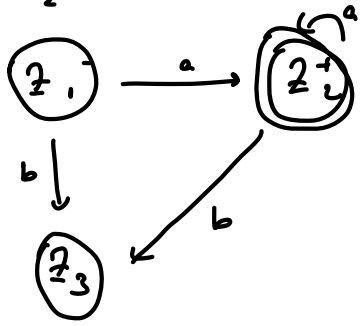
$\underline{- z_1 = x_1 \text{ or } Y_1}$

- z_1'de "a" okunursa $x_2 \text{ or } Y_1 = z_2$ final state
- z_1'de "b" okunursa $X_1 \text{ or } Y_2 = z_3$ final state



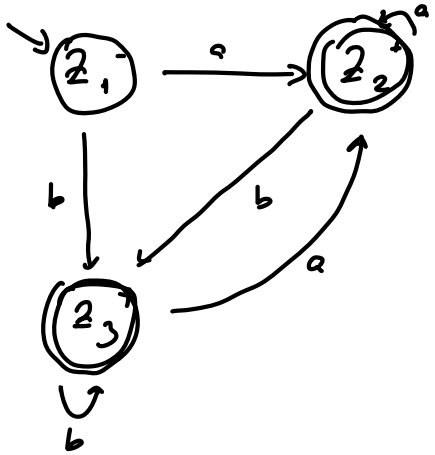
· Z_2'de "a" okunursa X_2 or $Y_1 = Z_2$

· Z_2'de "b" okunursa X_1 or $Y_2 = Z_3$



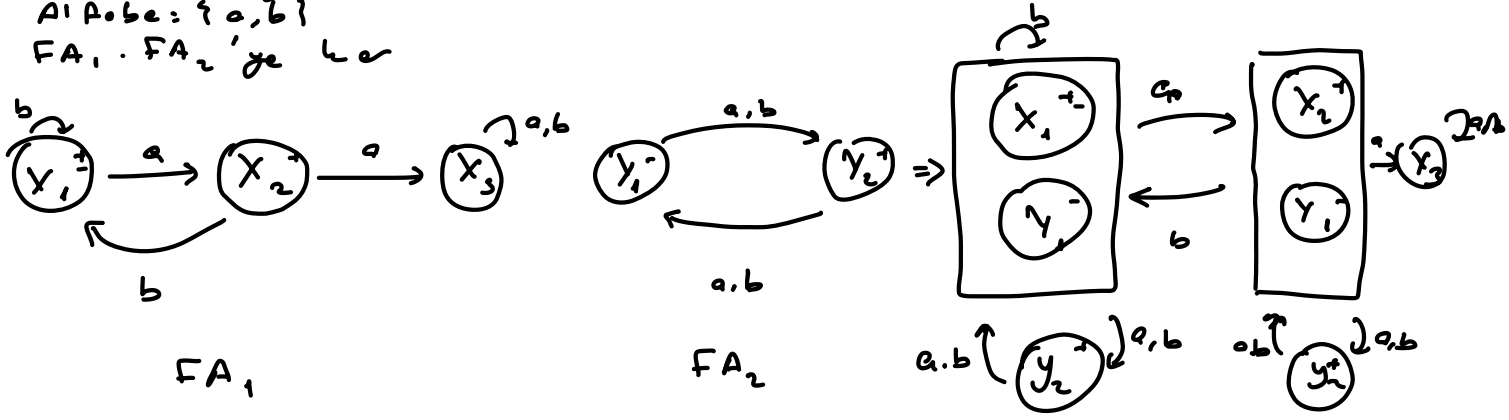
· Z_3'de "a" okunursa X_2 or $Y_1 = Z_2$

· Z_3'de "b" okunursa X_1 or $Y_2 = Z_3$



$\Rightarrow$ $FA_1 + FA_2$

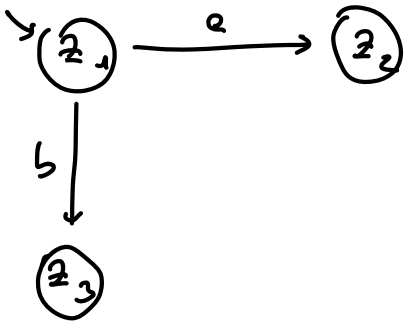
a) FA_1 : "aa" içermeyen tüm kelimeler kabul eder.
FA_2 : Tek sayıda harf içeren tüm kelimeleri kabul eder.
Alfabe: {a,b}
$FA_1 \cdot FA_2$'ye bak



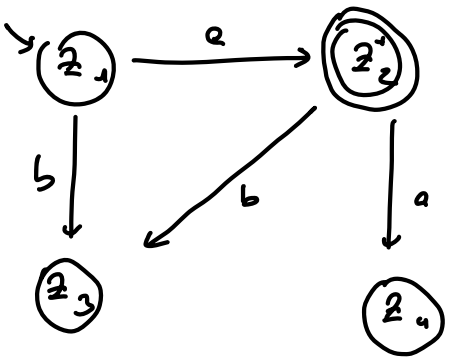
$Z_1 = X_1$ or Y_1

· Z_1'de "a" okunursa Y_2 or X_2 or $Y_1 = Z_2$

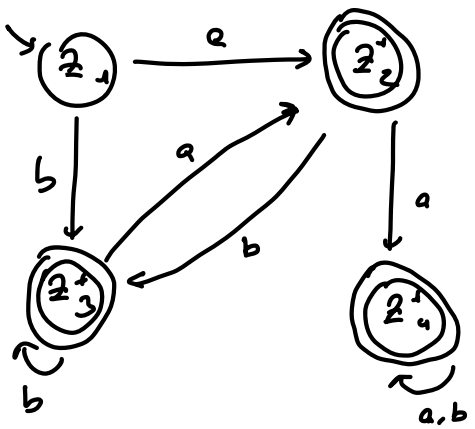
· Z_1'de "b" okunursa X_1 or Y_1 or $Y_2 = Z_3$



- z_2'de "a" okunursa $\quad Y_1$ or X_2 or $Y_2 = z_4$
- z_2'de "b" okunursa $\quad Y_1$ or X_1 or $Y_2 = z_3$



- z_3'de "a" okunursa $\quad X_2$ or Y_1 or $Y_2 = z_2$
- z_3'de "b" okunursa $\quad Y_1$ or Y_2 or $Y_1 = z_3$
- z_4'de "a" ya da "b" okunursa yine z_4 olur.

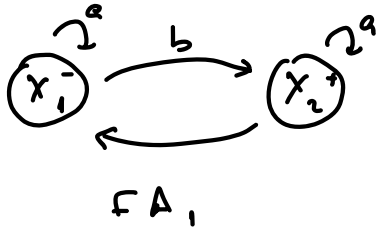


$\Longrightarrow FA_1 \cdot FA_2$

e) FA_1 : Tek sayıda b içeren tanımlanmış dil bulunuz.

Alfabe: {a, b}

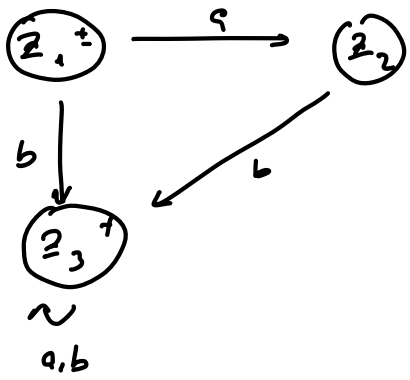
$FA_1^* = ?$



FA_1

- Z_1 = çıkış durumu olan $X_1 \rightarrow FA_1^*$ için boş kümenin olma durumu
- Z_2 = çıkış " olmayan X_1

- Z_1'de "a" okunursa Z_2
- Z_1 ve Z_2'de "b" okunursa X_1 or $X_2 = Z_3$
- Z_2'de "a" okunursa Z_2
- Z_3'de "a" veya "b" okunursa Z_3



$\Rightarrow$ FA_1^*

f) $(0+011)^* + (0+01)^* \perp$

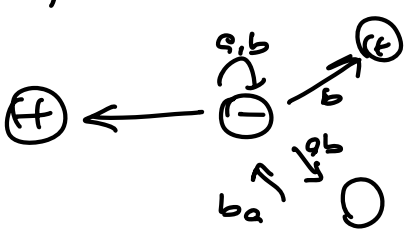
g) $(1+01^*11(01^*\perp)^*1^*1)^*$

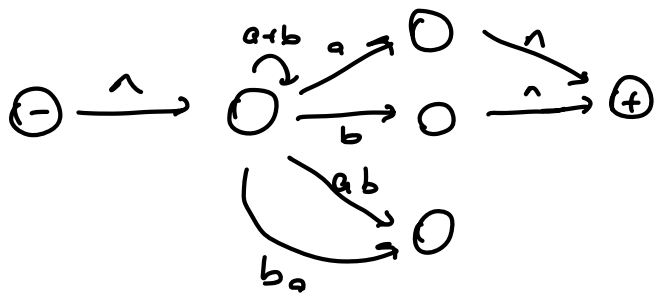
h) $1^*0^+(1^+0^+)^*$

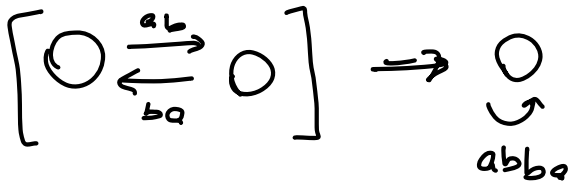
i) $01^* + 110\,(1101)^*$

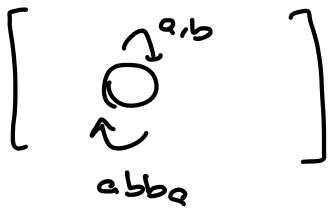
j) 1^*

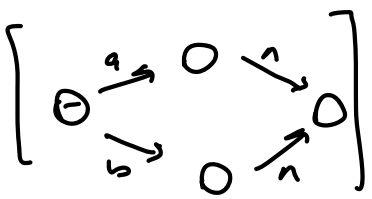
a) Kleene teoremi: İspatı sırasında verilen algoritmayı kullanarak aşağıdaki T.G'den denkli (A.E) elde ediniz.





- 

- 

- 

$$(a+b+abba)^* + (a+b)$$