

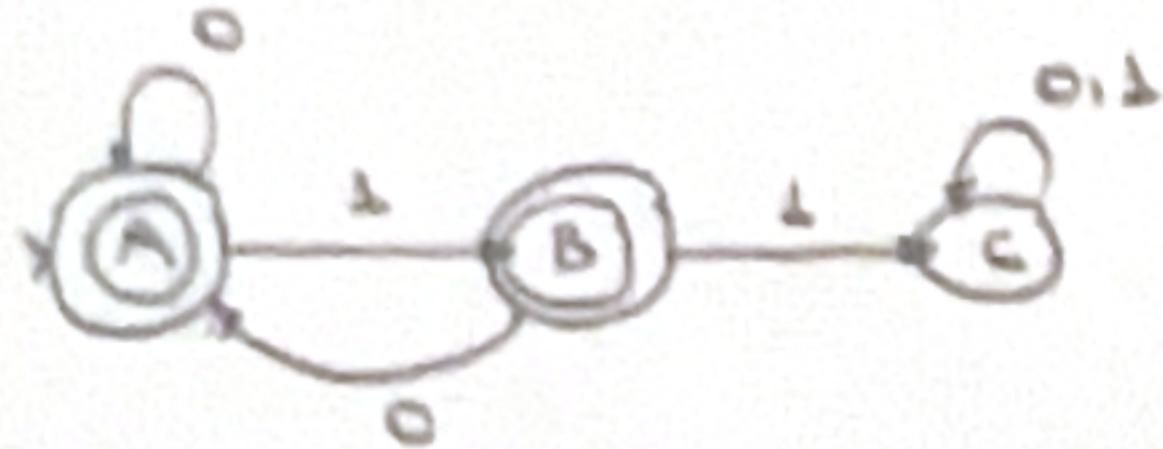
bilemnel diller ve otomata

Labels 1-5 101-0

**dsal** bir string; okurken gelen her karakter i<sub>n</sub>in gi<sub>n</sub>cecegi tek bir yön veya hic olmaz anlar.

dfa  $\Delta = (Q, \Sigma, \delta, q_0, F)$  nalgabe

↓  $\rightarrow f(9,0) = 92$   
shaker nong state  
 $a = 9,92$  gidegimt.



0100 girisiñi okuyam  
 $f(A,0) = A$  'A state' indeyim. 0 gelmis.  
 $f(A,1) = B$  ,  $f(B,0) = A$  ,  $f(A,0) = A$

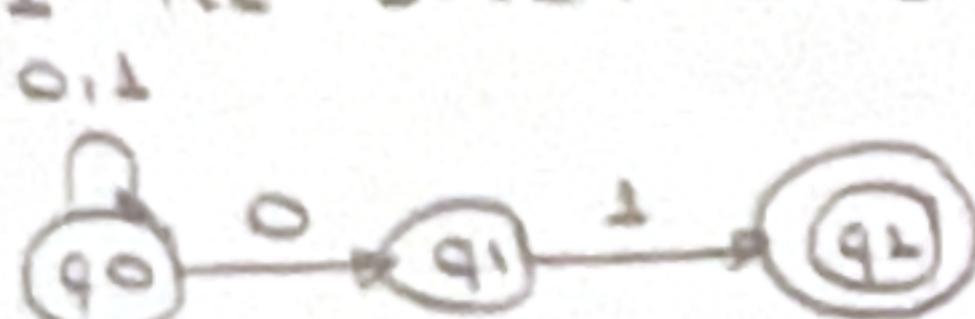
O ve l'lerden oulon oos alt steinguni taeran oga



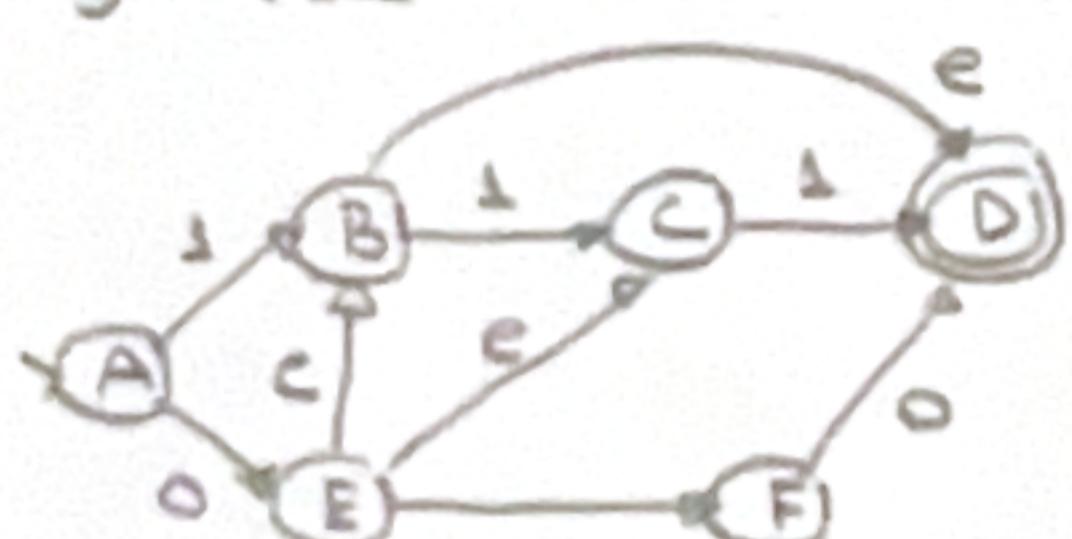
afci'da yeri duruma  
gumek sadece ve  
sadece menzit  
sonu sayida duruma  
ve duran sembolic  
bagli

E genisi var. dfa gjore 40k DAKA sade.

sonu or the bitten by dil.

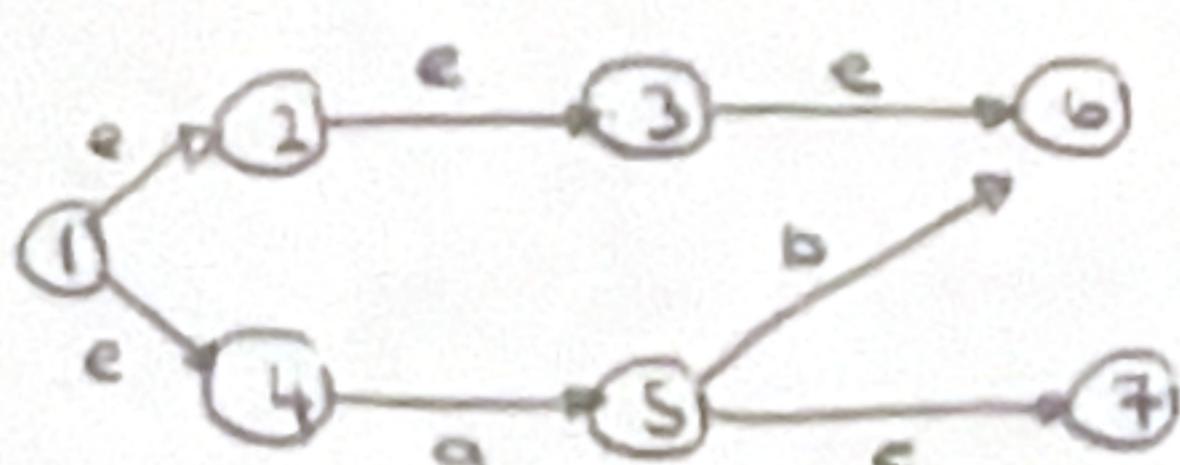


ZFA'yi tablo haline getirme.



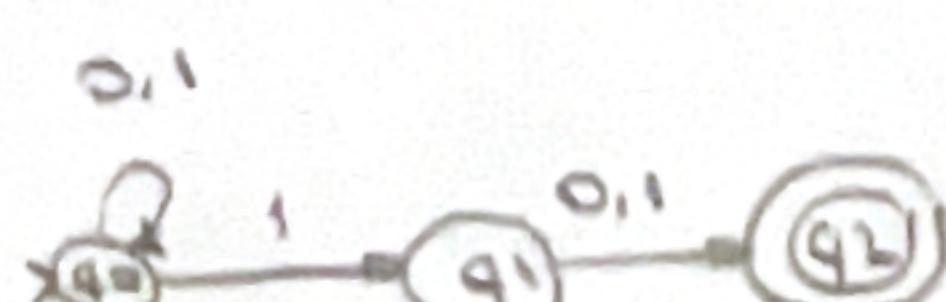
	0	1	e
A	$\sum E^3$	$\sum B^3$	a
B	a	$\sum C^3$	$\sum D^3$
C	a	$\sum D^3$	a
D	a	a	a
E	$\sum F^3$	a	$\sum B, C^3$
F	$\sum D^3$	a	a

**epsilon closure** higbi karakter okunmadan gidebileceğiniz stateler.



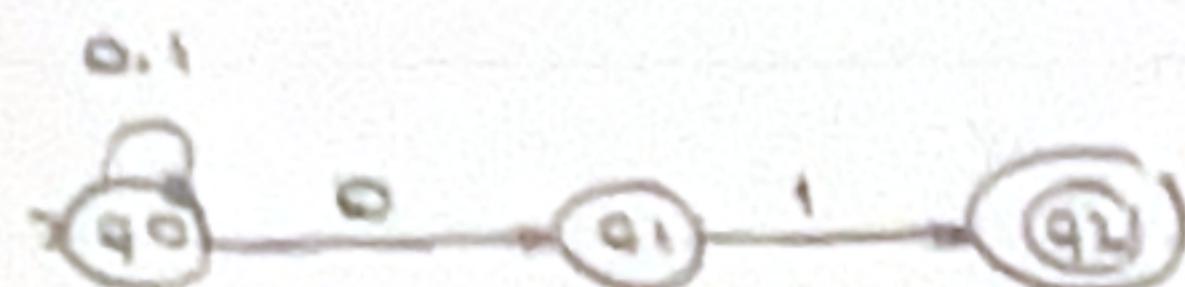
$\text{CLOSE}(1) = \{1, 2, 3, 4, 6\}$   
 $\text{CLOSE}(2) = \{2, 3, 6\}$   
 $\text{CLOSE}(3) = \{3, 6\}$   
 $\text{CLOSE}(4) = \{4\}$   
 $\text{CLOSE}(5) = \{5, 7\}$   
 $\text{CLOSE}(6) = \{6\}$   
 $\text{CLOSE}(7) = \{7\}$

1944-2 vaccinated + oan.

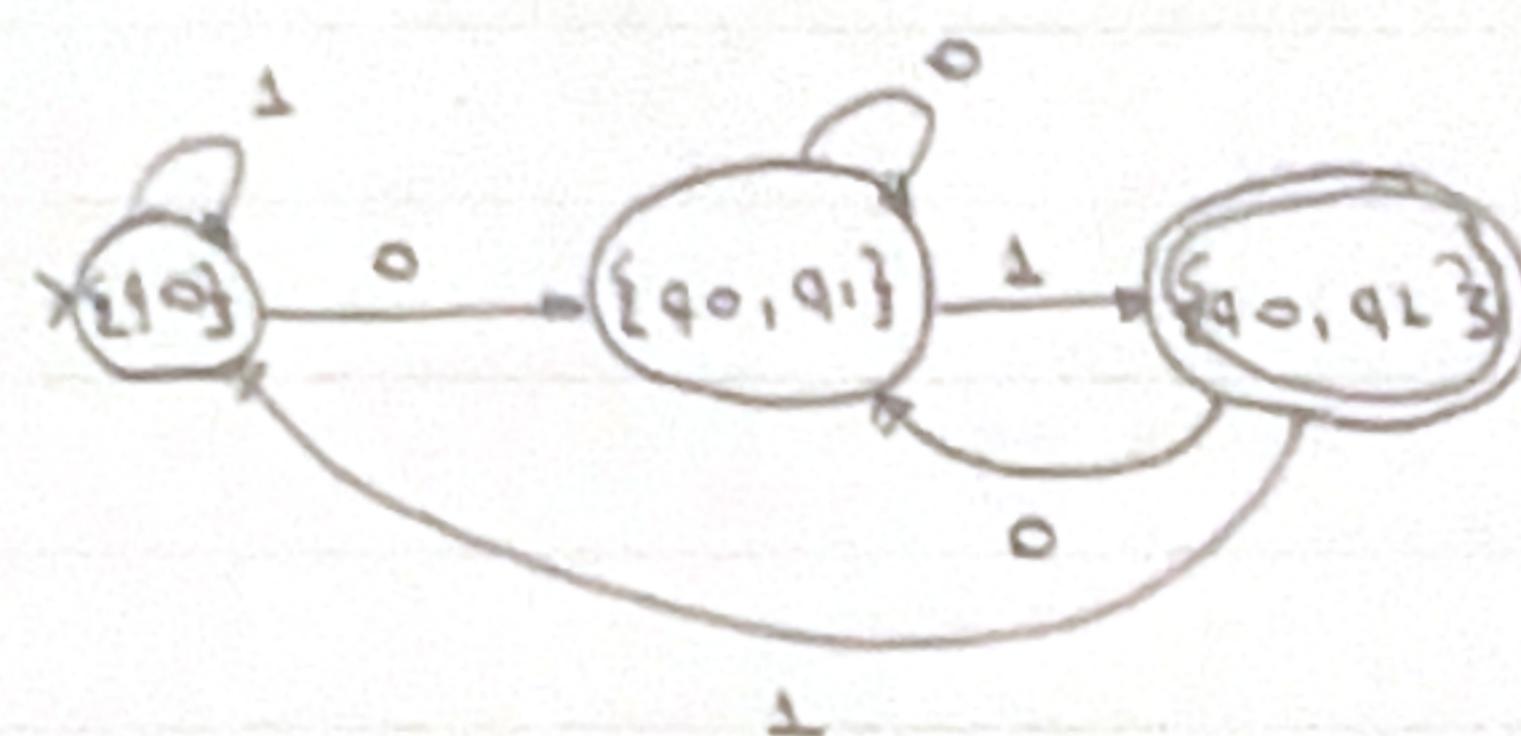


## NFA'yı DFA'ya Çevirme

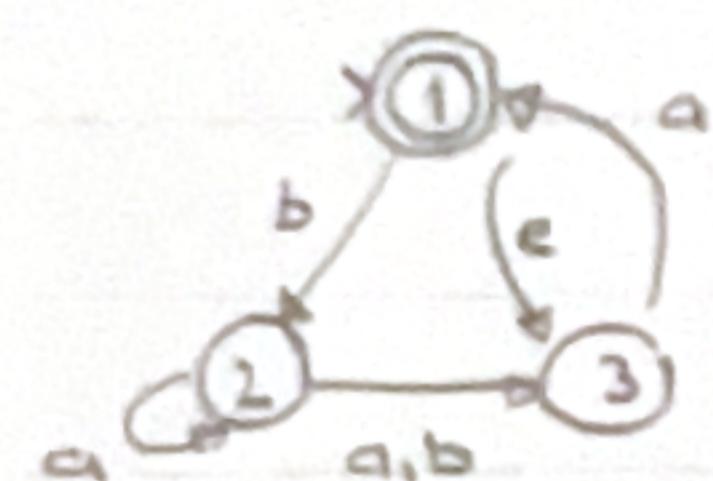
başlangıç state will



	0	1
$\rightarrow \{q_0\}$	$\{q_0, q_1\}$	$\{q_0\}$
$\{q_1\}$	$\emptyset$	$\{q_2\}$
$\leftarrow \{q_2\}$	$\emptyset$	$\emptyset$
$\{q_0, q_1\}$	$\{q_0, q_1\}$	$\{q_0, q_1\}$
$\leftarrow \{q_0, q_2\}$	$\{q_0, q_2\}$	$\{q_0\}$
$\leftarrow \{q_1, q_2\}$	$\emptyset$	$\{q_2\}$
$\leftarrow \{q_0, q_1, q_2\}$	$\{q_0, q_1\}$	$\{q_0, q_1\}$



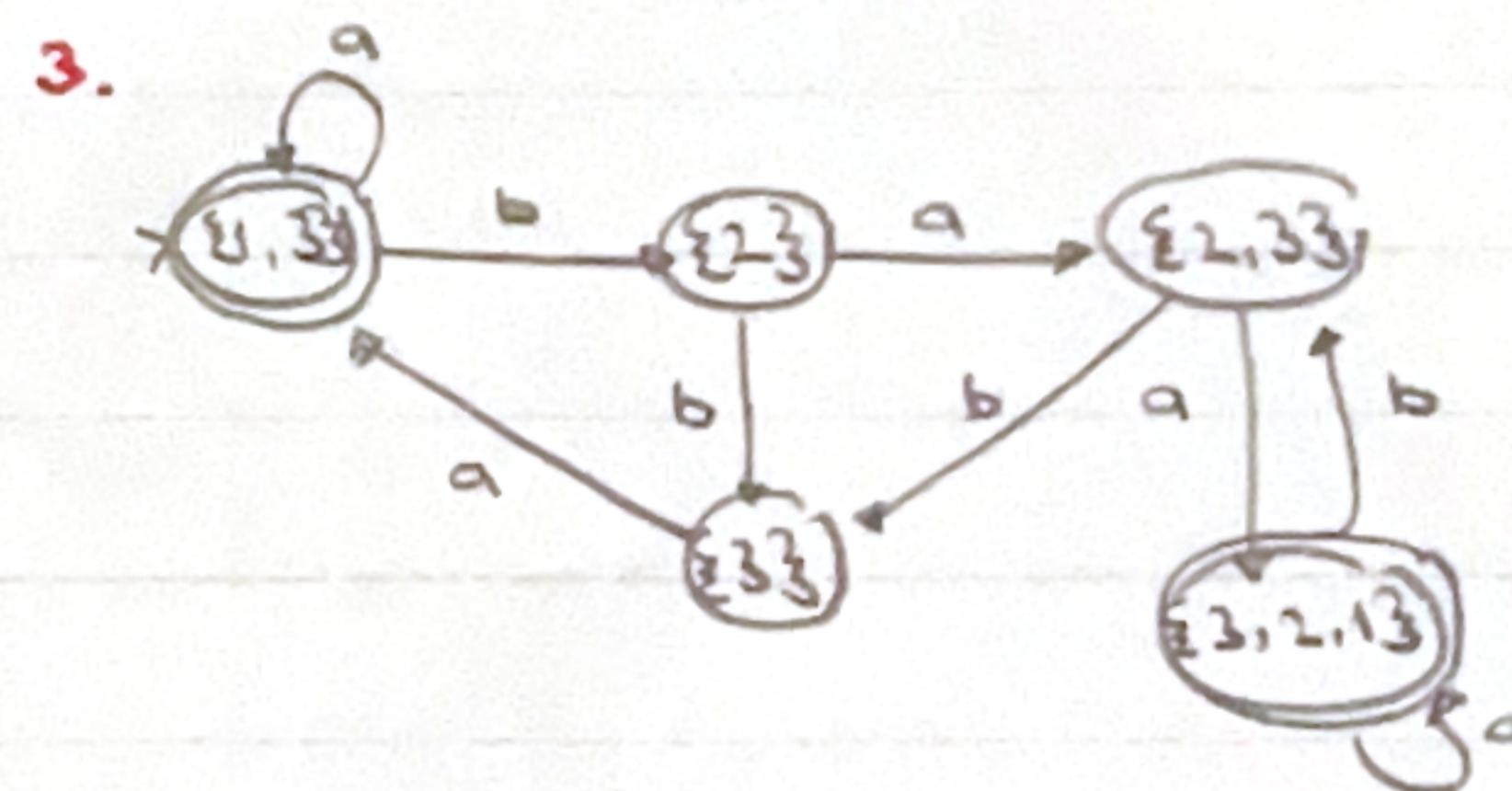
örnek:



1. close(1) =  $\{1, 3\} \rightarrow$  yeni start

2. tablo?

	a	b
$\rightarrow \{1, 3\}$	$\{1, 3\}$	$\{2\}$
$\{2\}$	$\{2, 3\}$	$\{3\}$
$\{3\}$	$\{1, 3\}$	$\emptyset$
$\{2, 3\}$	$\{2, 3, 1\}$	$\{3\}$
$\{1, 2, 3\}$	$\{1, 2, 3\}$	$\{2, 3\}$



# düzenli ifadeler

$$L = \{00, 11\} \quad M = \{1, 01, 11\}$$

$$L \cup M = \{00, 11, 1, 01, 11\}$$

$$L \cdot M = \{001, 0001, 0011, 111, 1101, 1111\} \text{ (birleştirme = concatenation)}$$

$$L^* = \{e\} \quad L' = L = \{00, 11\} \quad L'' = \{0000, 0011, 1100, 1111\} \text{ (L.L')}$$

$L^*$  sonlu toka kadar yapısını oluşturuyor. = {e, 00, 11, 0000, 0011, ...}

$$a^* \rightarrow \{e\}, a, aa, aaa, \dots \quad ab \rightarrow ab \text{ birleştirme}$$

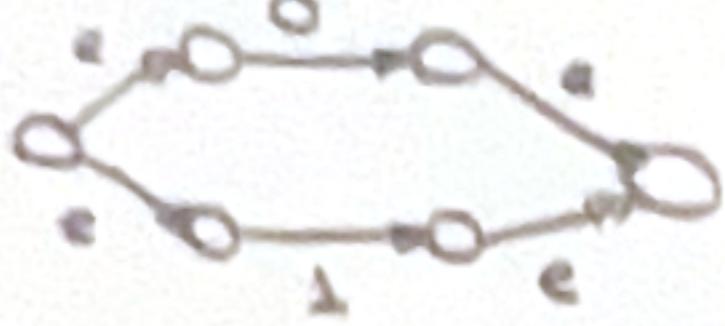
$$a \cup b \rightarrow a, b$$

$$(a \cup b)^* \rightarrow \{e\}, a, b, aa, ab, bb, \dots$$

düzenli ifadeleri NFA'ya çevirmek

$$a \rightarrow \xrightarrow{a} \circ \xrightarrow{a} \circ$$

$$(a \cup b)$$



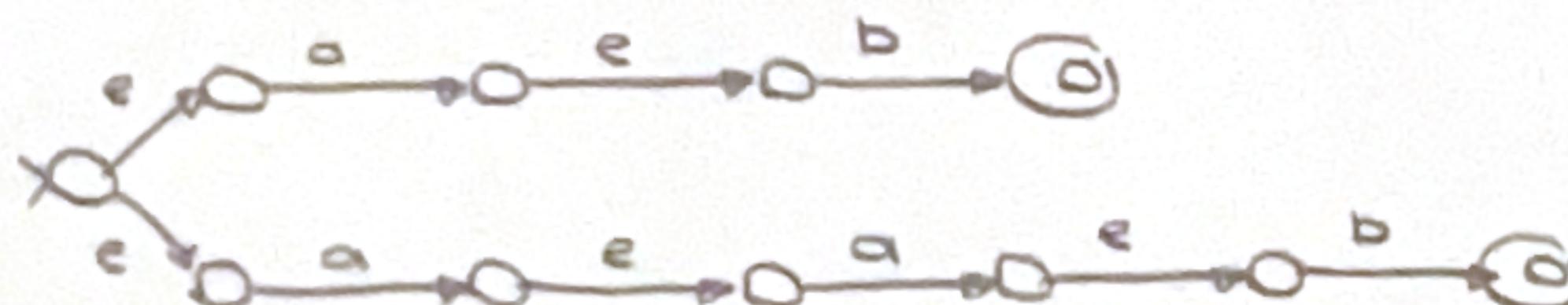
$(ab \cup aab)^*$  NFA'sı ne olur?

$$a:b \quad \xrightarrow{a} \circ \xrightarrow{b} \circ$$

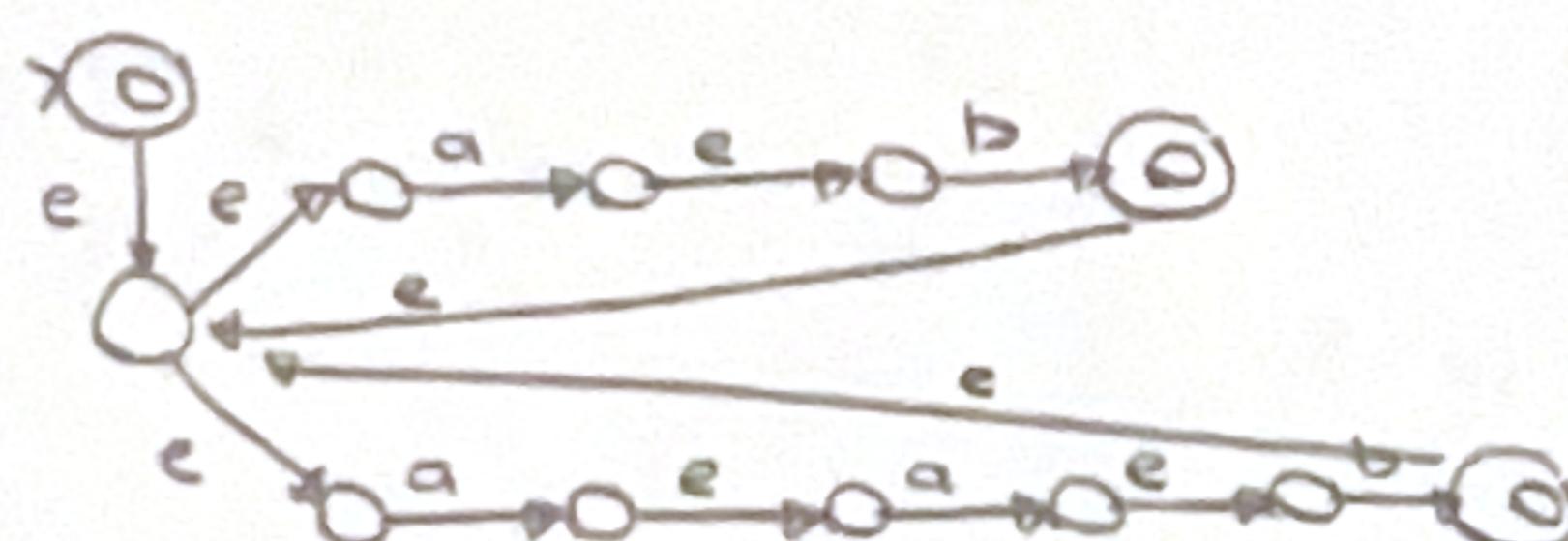
$$ab:aab \quad \xrightarrow{a} \circ \xrightarrow{e} \xrightarrow{b} \circ$$

$$\xrightarrow{a} \circ \xrightarrow{e} \xrightarrow{a} \circ \xrightarrow{e} \xrightarrow{b} \circ$$

$$ab \cup aab$$

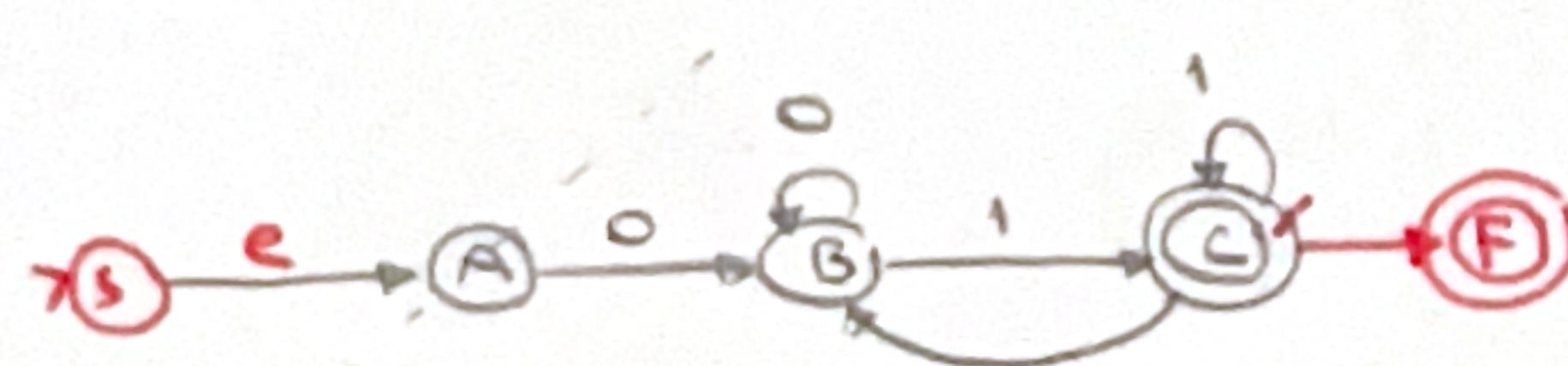


$$(ab \cup aab)^*$$

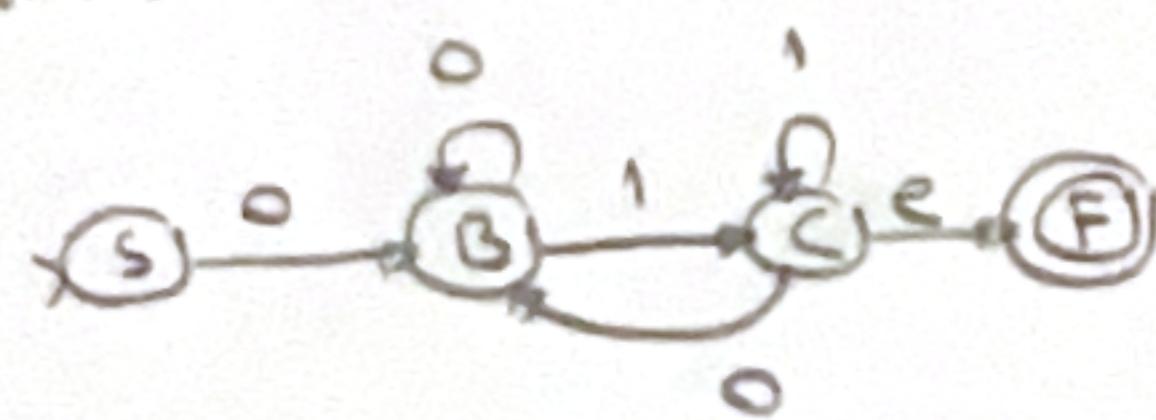


dfa'yi düzenli ifadelerle dönüştürmek

s adında yeni bir başlangıç state oluştur. gecisi e ile eski başlangıç stateine bağla ve F ile yeni bitiş oluştur. eski bitisi e ile F' ye bağla.



1. A'yi çıkar. ( $\varnothing = 0$ )



2. B'yi çıkar. s ve C arası, c'den c'ye etkileniyor.

$$(00^* 1)^* \xrightarrow{0} (00^* 1)^*$$

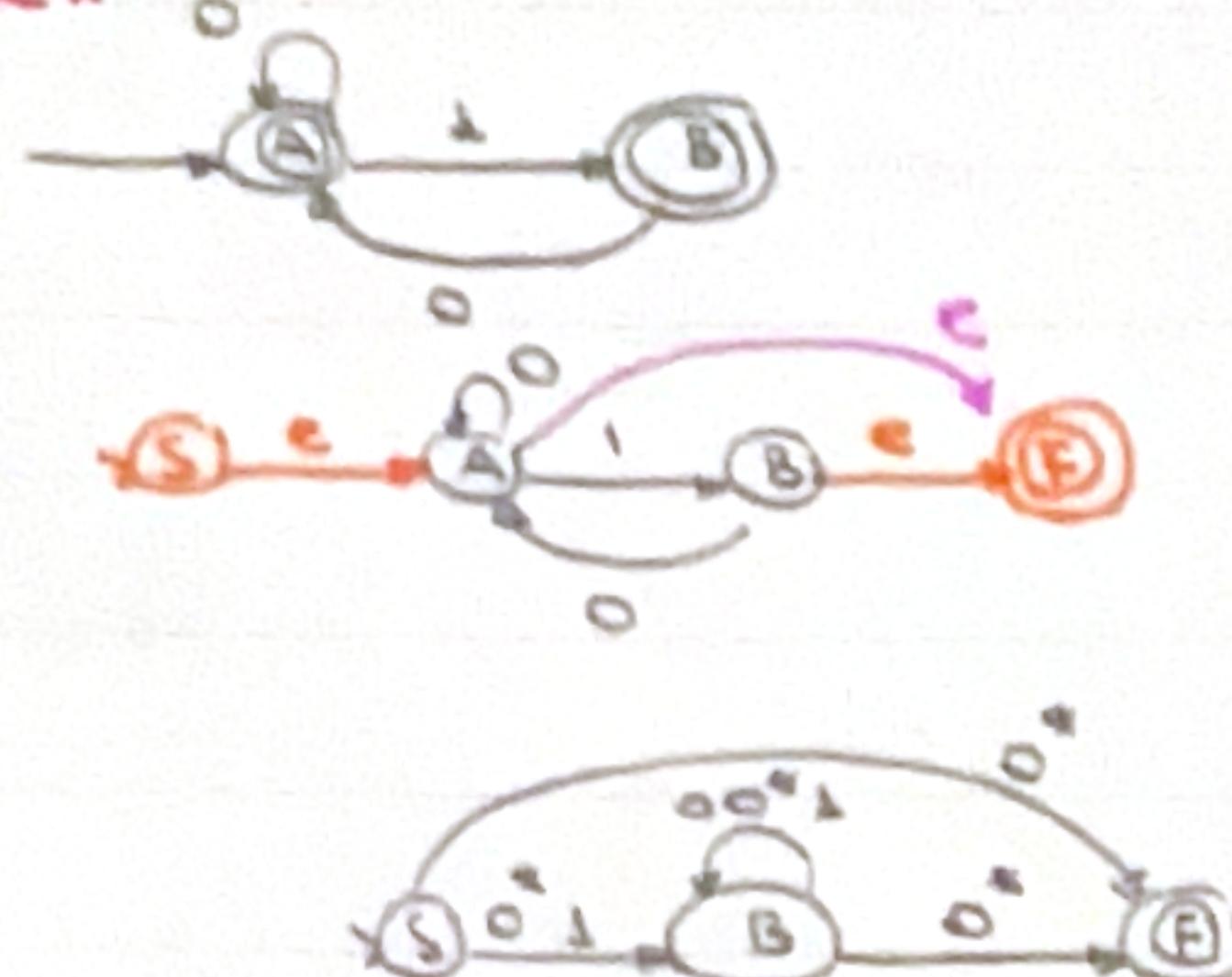
$$\xrightarrow{1} \xrightarrow{e} \circ \xrightarrow{e} \circ \xrightarrow{F}$$

S, F arası etkileniyor.

$$00^* 1 \xrightarrow{1} (00^* 1)^*$$

$$\xrightarrow{00^* 1} \xrightarrow{1} \circ \xrightarrow{e} \circ \xrightarrow{F}$$

ömek:



A'yi çıkarmam.

SB arası,  $0^\circ$

SF arası,  $0^\circ$

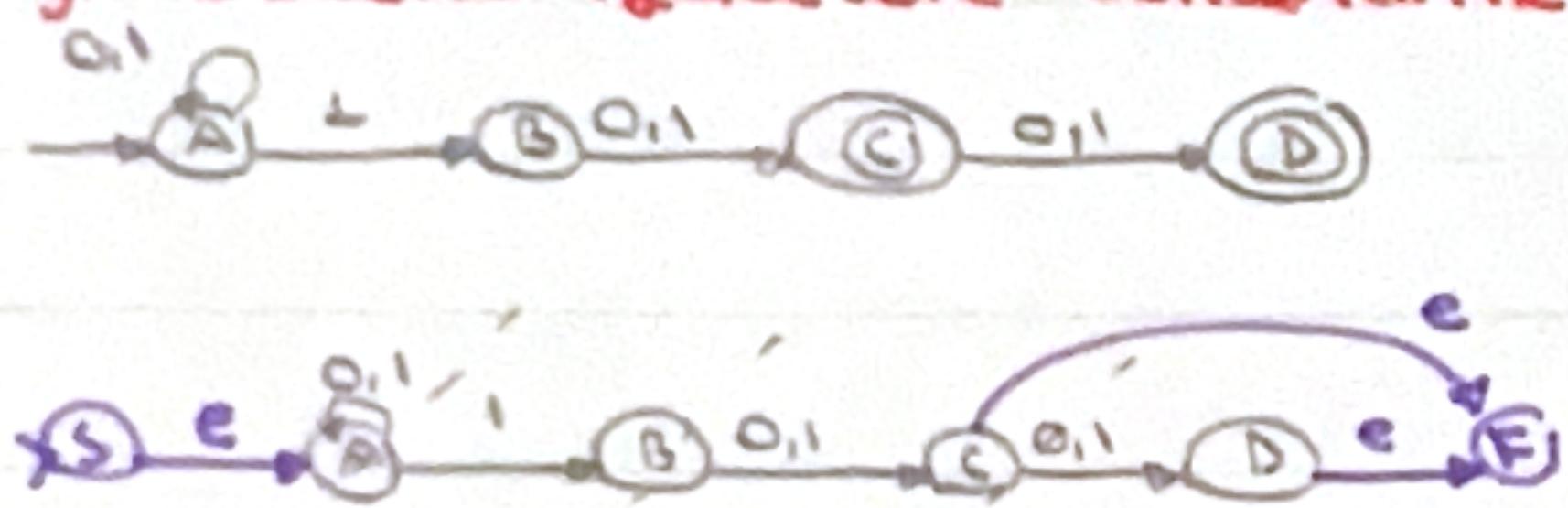
BB arası,  $00^\circ$

BF arası,  $00^\circ$  U e =  $0^\circ$

B'yi kırın

alt kismi:  $0^\circ$  +  $(00^\circ)$  +  $0^\circ$  U  $0^\circ$   
üst  
kismi

ng'yi düzenli ışadelerle dönüştürmek



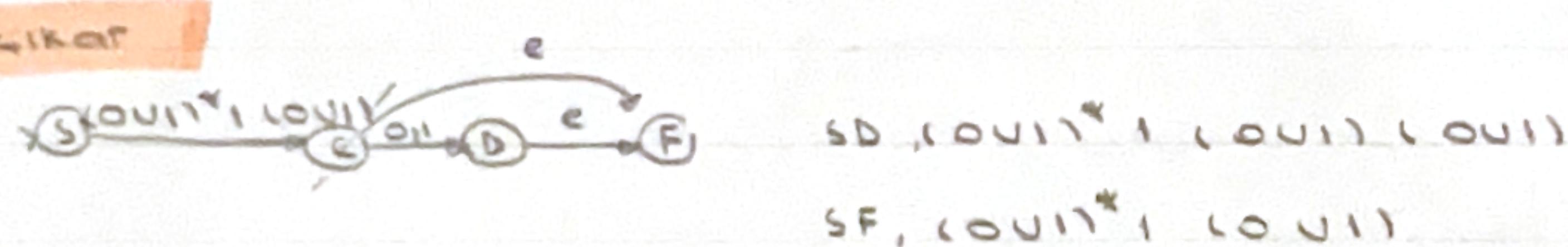
A'yi çıkarmam.

SB, LOU17<sup>\*</sup>

B'yi kırın

SC, LOU17 + LOU11

C'yi kırın



SD, LOU17<sup>\*</sup> + LOU11 + LOU11

SF, LOU17<sup>\*</sup> + LOU11

D'yi kırın

LOU17<sup>\*</sup> + LOU11 + LOU11

yani

(LOU17<sup>\*</sup> + LOU11 + LOU11) U (LOU17<sup>\*</sup> + LOU11)