TUGAS 12 TEORI BAHASA DAN OTOMATA

Diajukan untuk memenuhi salah satu nilai mata kuliah Teori Bahasa dan Otomata

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Penyelesaian :

1). a a b

j \ i	1	2	3
1	A,C	A,C	B
2	B	S.C	
3	B		

$V_{ij} = V_{ik} - V_{ikj}\,k$

$\rightarrow j = 2i = 1,2 \quad k = 1$

Baris 2 $V_{12} = V_{11} - V_{21}$

$= AC - AC = AA, AC, CA, CC$

$= U, U, U, B$

$V_{22} = V_{21} - V_{31}$

$= A,C - B = AB, AC$

$= S, C, \emptyset$

$V_{13} = V_{11} - V_{21}$

$= A,C - AC = AA, AC, CA, CC$

$= U, U, U, B$

2.) 'aabab'

	a	a	b	a	b
	1	2	3	4	5
1	A,C	A,C	B	A,C	B
2	B	S,C	A,S	S,C	
3	B,A	B	S,B,C		
4	S,A,C	B			
5	S,C				

$V_{ij} = V_{ik} - V_{kj}$

dk.

$\rightarrow j = 2j = 1, 2, 3, 4$ $k = 1$ (baris ke 1)

$V_{12} = V_{11} - V_{21}$

$= AC - AC = AA, AC, CA, CC =$

$= \emptyset \quad \emptyset \quad \emptyset \quad \underline{B}$

$V_{22} = V_{21} - V_{31}$

$= AC - B = AB, CB$

$= S, C, \emptyset$

2.) 'aabab'

	a	a	b	a	b
	1	2	3	4	5
1	A,C	A,C	B	A,C	B
2	B	S,C	A,S	S,C	
3	B,A	B	S,B,C		
4	S,A,C	B			
5	S,C				

$V_{ij} = V_{ik} - V_{kj}$

dk.

$\rightarrow j = 2j = 1, 2, 3, 4$ $k = 1$ (baris ke 1)

$V_{12} = V_{11} - V_{21}$

$= AC - AC = AA, AC, CA, CC =$

$= \emptyset \quad \emptyset \quad \emptyset \quad \underline{B}$

$V_{22} = V_{21} - V_{31}$

$= AC - B = AB, CB$

$= S, C, \emptyset$

$V_{22} = V_{31} - V_{11}$

$= B - AC = BA . Bc$

$= A, S$

$V_{42} = V_{41} - V_{51}$

$= A.C - B = AB . CB$

$= S.C, \emptyset$

Baris 3

K1

$\rightarrow j = 3, i = 1,2,3 \quad k = 1,2$

$V_{13} = V_{11} - V_{22}$

$= AC, A.C = AA, AC, CA, CC$

$= \emptyset, \emptyset, \emptyset, B$

K2

$= V_{12} - V_{31}$

$= B - AS, = BA, BS$

$= A, \emptyset$

K1

$V_{23} = V_{21} - V_{32}$

$= AC, AS = AA, AS, CA, CS$

$= \emptyset, \emptyset, \emptyset, \emptyset$

$k2 = V_{22} - V_{41}$

$= S.C, AC = SA, SC, CA, CC$

$= \emptyset, \emptyset, \emptyset, B$

k1

$V_{33} = V_{31} - V_{42}$

$= B, SC = BS, BC$

$= \emptyset, S$

k2

$= V_{32} - V_{51}$

$= AS, B = AB, SB$

$= SG, O$

baris ke 4

$j = 4, i = 1, 2, k = 1, 2, 3$

k1

$V_{14} = V_{11} - V_{23}$

$= A, C - B = AB, CB$

$= S, C, \emptyset$

k2

$= V_{12} - V_{32}$

$= B - AS = BA, BS$

$= A, \emptyset$

k3

$= V_{13} - V_{41}$

$= B, A - AC = BA, BC, AA, AC$

$= A, S, \emptyset \emptyset$

k1

$V_{11} = V_{21} - V_{33}$

$= AC - SC = AS, AC, CS, CC$

$= \emptyset, \emptyset, U, B.$

k2

$= V_{12} - V_{42}$

$= S.C - SC = SS, SC, CS, CC$

$= \emptyset . \emptyset \ \emptyset, B$

k3

$V_{13} - V_{51}$

$= B - B = BB$

$= \emptyset$

Baris ke 5

j = 5 i = 1 k = 1, 2, 3, 4

k=1

$= V_{11} - V_{24}$

$= A.C \ B = AB, CB$

$= S, C, \emptyset$

k=2

$= V_{12} - V_{33}$

$= B - SC = BS, BC$

$= \emptyset, S$

#3

$V_{13} \rightarrow V_{42}$

$= BA, SC = BS, BC, AS, AC$

$= \emptyset, S, \emptyset, \emptyset$

#4

$V_{14} - V_{51}$

$= S, A, C - B = SB, AB, CB$

$= \emptyset, S, C \emptyset =$

maka String "aabab" di terima karena Pada cari terakhir V_{15} Terdapat S.

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3 Dik ~~fata~~

3. Dik TBBK

S → AB | BC

A → BA | a

B → CC | b

C → AB | a

A.C A.C B A.C B A.C

a a b a b a

	1	2	3	4	5	6
1	A.C	A.C	B	A.C	B	A.C
2	B	S.C	A.S	S.C	A.S	
3	B	B	S.C	∅		
4	S.C.A	B.A.S	B.B			
5	S.C	S.C.A				
6	B.A.S					

- $V_{12} : V_{11} - V_{21} = A.C - A.C = AA, AC, CA, CC$
  $= \emptyset, \emptyset, \emptyset, B$
- $V_{22} : V_{21} - V_{31} = A.C - B = AB, CB$
  $= S.C$
- $V_{32} : V_{31} - V_{41} = B - A.C = BA, BC$
  $= A.S$
- $V_{42} : V_{41} - V_{51} = A.C - B = AB, CB$
  $= S, C$
- $V_{52} : V_{51} - V_{61} = B - A.C = BA, BC$
  $= A, S$
- V_{13} : K_1 : $V_{11} - V_{22}$: $A.C - S.C$: $AS, AC, CS, CC \rightarrow B$

  K_2 : $V_{12} - V_{31}$: $B - B$: $BB = \emptyset$

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- V_{23} : k_1 | k_2
  - $= V_{21} - V_{32}$ | $= V_{22} - V_{41}$
  - $= A,C - A,S$ | $= S,C - A,C$
  - $= AA, AS, CA, CS = \emptyset$ | $= SA, SC, CA, CC$
  - $= B$

- V_{33} : k_1 | k_2
  - $= V_{31} - V_{42}$ | $= V_{32} - V_{51}$
  - $= B - S,C$ | $= A,S - B$
  - $= BS, BC = S$ | $= AB, SB = S,C$

- V_{43} : k_1 | k_2
  - $= V_{41} - V_{52}$ | $= V_{42} - V_{51}$
  - $= A,C - A,S$ | $= S,C - B$
  - $= AA, AS, CA, CS = \emptyset$ | $= SB, CB = \emptyset$

- V_{14} : k_1 | $-k_2$ | k_3
  - $= V_{11} - V_{23}$ | $= V_{12} - V_{32}$ | $= V_{13} - V_{41}$
  - $= A,C - B$ | $= B - A,S$ | $= B - A,C$
  - $= AB, CB$ | $= BA, BS$ | $= BA, BC$
  - $= S,C$ | $= A$ | $= A,S$

- V_{24} : k_1 | k_2 | k_3
  - $= V_{21} - V_{33}$ | $= V_{22} - V_{42}$ | $= V_{23} - V_{41}$
  - $= A,C - S,C$ | $= S,C - SC$ | $= B - A,C$
  - $= AS, AC, CS, CC$ | $= SS, SC, CS, CC$ | $= BA, BC$
  - $= B$ | $= B$ | $= A,S$

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V_{34} : k_1 : k_2 : k_3

$= V_{31} - V_{43}$: $= V_{32} - V_{52}$: $= V_{33} - V_{61}$

$= B - \emptyset$: $= A,S - A,S$: $= S,C - A,C$

$= B$: $= AA, AS, SA, SS$: $= SA, SC, CA,$

: $= \emptyset$: $= B$

$V_{15} = k_1$

$= V_{11} - V_{24}$

$= A,C - B,A,S$

$= AB, AA, AS, CB, CA, CS$

$= S,C$

$= k_2$: $= k_3$: $= k_4$

$= V_{12} - V_{33}$: $= V_{13} - V_{42}$: $= V_{14} - V_{51}$

$= B - S,C$: $= B - S,C$: $= S,C,A - B$

$= BS, BC = S$: $= BS, BC = S$: $= SB, CB, AB$

: : $= S; C$

$V_{25} = k_1$: $= k_2$

$= V_{21} - V_{34}$: $= V_{22} - V_{43}$

$= A,C - B,B$: $= S,C - \emptyset$

$= AB, AB, CB, CB$: $= S,C$

$= S, S$

$= k_3$: $= k_4$

$= V_{23} - V_{52}$: $= V_{24} - V_{61}$

$= B - A,S$: $= B,A,S - A,C$

$= BA, BS$: $= BA, BC, AA, AC, SA,$

$= A,$: $= A, S,$

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Date:

- $V_{1L} = k1$
  $= V_{11} - V_{25}$
  $= A,C - S,C,A$
  $= AS, AC, AA, CS, CC, CA$
  $= B$

  $= k2$ $= k3$
  $= V_{12} - V_{34}$ $= V_{13} - V_{43}$
  $= B - B.B$ $= B - \emptyset$
  $= BB, BB$ $= B$
  $= \emptyset$

  $= k4$
  $= V_{14} - V_{52}$
  $= S.C.A - A.S$
  $= SA, SS, CA, CS, AA, AS$
  $= \emptyset$

  $= k5$
  $= V_{15} - V_{61}$
  $= B - A.C$
  $= BA ; BC$
  $= A, S$

Panjang string 6 karena baris ke 6 = B, A, S dan mengandung state awal. maka ababa termasuk dalam bahasa tersebut.