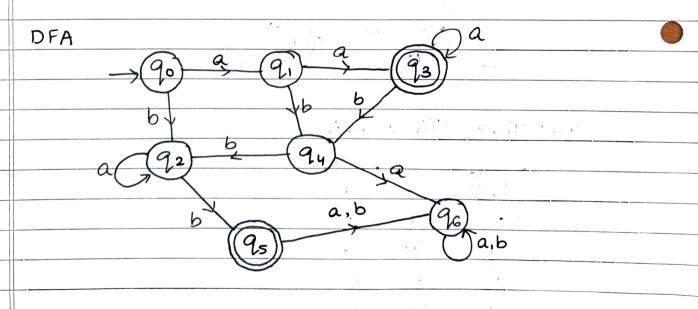


_				
	n	y= E closure(n)	8(4,a)	8(4,6)
	→ 90 (s}	{5}	{A}91	{B} 192
	9,8A3	{A}	{A,F393	Ec3 94
	92883	~ 2. {B}, ~, ~	{ B } 92	[F] 95
	* 93{A,F3	A , Fg. 1)	{A, F 3193	{c} 94
	94 6 63	{c}	{ } 96	{B} 92
	* 95 {F3	{ F 3	{} 96	£ 3 . 96
	90 { 3	{ }	{ } q6	{} 96
- 1	1		•	

* * Agr 1991)

TRAI	MOITIZU	DIAGRA	AM PARTY IN
BE	a	b	/i = x =
→90	9,	92	
91	93	94	21 × 14
92	9,2	9,5	(36 (n € 1 × 1
* 93	9,3	94	
94	96	9,2	ei Male (1)
× 95	96	96	- (
96	96	96	
. ,	<i>V</i>		

113- 6 - 14



8,2	S -> 0B IA (anisonism a see depid 142 0
	A -> 0/05/IAA
	B -> [15 0BB
	for string "00011 0101" find
	a] LMD
-	6] RMD (are a) . A . A . A . A . A . A . A . A . A .
	c] devivation tree .
	[276-4] 1 2011 5 5 4
Solution	P: [S->OB IA
	A O OSTIAA
	B → 1/15/0BB
	1 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A
	a) LMD (sentential form)
	$S \longrightarrow OB$ $[S \rightarrow OB]$
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	- > 0 0 1 5 B
	$\rightarrow 0 0 1 1 A B [S \rightarrow 1A]$
	\rightarrow 0 0 1 1 0 S B [A \rightarrow 0 S]
	→ 0 0 1 1 0 1 A B [S → 1A]
	→ 0 0 1 1 0 1 0 8 [A → 0]
	→ 00110101[B→1]
	c) Passe tree
	S
	8
	В
	0 8
	1 5
	6 5
	1 - A - D
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RMD (Right most Derivation) 6 11111 5 -> 0B] B 8 18 1 " 1 7 1 7 [B:→> OBB] 0 0 В 0 ١ S 1 \mathcal{O} Colored ! [S -> IA] O 0 1 A 1 1051 [A-05] 0 1, [s→1A] 010 1 [A - 0] 0 2001 141 Parsee tree B 14 B 1 4 4 4 1 1 1 O

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9,3	Show s -> SbS a is ambiguous
Solution	$G = (\{s\}, \{a,b\}, P, \{s\})$
	$P: S \rightarrow SbS/a$
	- /\ < - ci
	From the above grammer the string "ababa"
	can be generated in two ways.
	First lettmost derivation
	$S \rightarrow SbS \qquad [S \rightarrow SbS]$
	-> a b S in [s -> a] or a devine it
	$\rightarrow absbs$
	$\rightarrow ababS [s \rightarrow a]$
	-> a baba [s -> a]
	23, 3,50° 130° 123 133 1 20 20 20 20 20 20 20 20 20 20 20 20 20
	Second letimost derivation
	NS ⇒US busche of want of the first
	$\rightarrow S$ b S b S [S \rightarrow S b S]
	→ a b s b s [s → s b s]
	\rightarrow a b a b s. [5 \rightarrow a].
	-> ababa [s -> a]
	Cinear II and and the device time to a simple
	since there are two lestmost against or a single
i	Since there are two lettmost derivation for a single string "ababa", the grammer G is ambigious
	EL OF TOUCHER LONG BY AND STORE OF A CONTROL OF THE STORE

84	Convert to CNF
ຳ)	S -> ABa Lot a Lot of the state
	$A \rightarrow aab$
	$B \longrightarrow Ac$
	"a decide" print and a many of a religion
Solution	STEP 1: Simplifying Grammer.
	i) Removal o e productions
	There are no & productions
	2000 - 200
	ii) Removal quinit productions.
	There are no unit productions.
	iii) Removal of useless variables.
	There are no useless variables
	a block day done
	STEP 2: S -> AB a S -> AB Ca , Ca -> a
	$S \rightarrow AC, C_1 \rightarrow BC_0$
	A -> aab A -> Ca Ca Cb Cb -> b
	A \rightarrow caca C_b , $C_b \rightarrow b$ A \rightarrow $C_2 C_b$, $C_2 \rightarrow CaCa$
ું તુ ફર્સ ક 🖟	$B \rightarrow Ac$ $B \rightarrow AC_{c}$ $C_{c} \rightarrow C$
	G(VTPS): { {S,A,B,C1,C2,Ca,C6,Cc3,{a,b,c3,P,S}

	$P: S \longrightarrow AC,$
	$A \longrightarrow C_2 C_B$
	$B \longrightarrow A \subset_c$
	$Ca \rightarrow a$
	$C_1 \rightarrow B Ca$
	$C_b \rightarrow b$
	$C_2 \rightarrow C_a C_a$
	$C_c \rightarrow c$
ii)	$S \rightarrow AB \mid aB$
	$A \rightarrow aab$
	B → bbA
Solution	STEP 1: Simplifying grammer.
	The sound of alxordy specified
	The given grammes is already simplified
+ 4	STEP 2: The Land Control of the Control of the Control of
	S -> AB ANDITOR OF TAMES AND
	s → aB S → CaBo, ca → a
	A -> cacacb; Cb -> b
	A -> CFb ; C, -> Ca Ca
	B -> Cb Cb A
4	$B \rightarrow C_2 A$, $C_2 \rightarrow C_b C_b$
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	G(V, T, P,S)
	, - A +
	({5,A,B, Ca,Cb, C1,C23, {a,b3, P,53
	(3)
	P: S-> AB
	$s \rightarrow CaB$
	$A \rightarrow C_1C_6$
	$B \longrightarrow C_2 A$
	$Ca \rightarrow a$
	$C_b \rightarrow b$
	$C_1 \rightarrow Ca Ca$
	$C_2 \rightarrow C_b C_b$
	1/2 4 4 27
0,5	Convert to GNF was a sample porter in the same
i]	E -> E+E E* (E) lid my my onn on
Solution	STEP 1: There is only one variable and with 2 left
	recursive productions
	Remove let recursion
	E- = E+E E* (E) id A -> Ax, Ax2 B, B2
	A A α_1 A α_2 B, β_2 A \rightarrow B, A' B A' B, β_2
	$A' \longrightarrow \alpha_1 A' \mid \alpha_2 A' \mid \alpha_1 \mid \alpha_2$
	ji

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 $E \rightarrow (E)E' \mid idE' \mid (E) \mid id$ E' -> + EE' | * E' | + E | * $E \rightarrow (E) E^{L} \qquad \Longrightarrow E \rightarrow (E E_{1} E_{1} \rightarrow) \checkmark$ E' + EE' V $\epsilon' \rightarrow \star \epsilon' \checkmark$ $E' \rightarrow + E \checkmark$ 14 10 in any spaint of 12 10/2 € → (EE,E'|idE'|LEE, Iid 11 7 1/2 1/2 E' -> + EE' | * E' | x + E | * A A A & * - 21 State and A. A. S. S. S. C. FOR EDUCATIONAL USE (Sundaram)

(ii) Soluti on $s \rightarrow AA \mid a$ A -> SS | b STEP 1: Strapty Simplifying given grammer i) Removing & productions
ii) Removing unit productions
iii) Removing useless variables. The given grammer is already simplified. STEP 2: Renaming voulables A A2 Liliani'asil'amaj * $A_1 \longrightarrow A_2 A_2 / a$ $A_2 \longrightarrow A_1 A_1 I_b \times X$ $A_2 \longrightarrow A_2 A_2 A_1 / a A_1 / b$ STEP 3: Removing let recursion Formula: $A \rightarrow A \times |\beta| |\beta_2|$ $A \longrightarrow \beta, A' \mid \beta_2 A' \mid \beta, \mid \beta_2$ $A' \longrightarrow \alpha A' / \alpha$ $\frac{A_2}{A} \xrightarrow{\longrightarrow} \frac{A_2}{A} \xrightarrow{A_2} \frac{A_1}{A} \xrightarrow{A_1} \frac{A_1}{A} \xrightarrow{\beta_1} \frac{A_2}{\beta_2}$

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A2 -> a A, A' | b A' | a A, | b

 $A' \longrightarrow A_2 A_1 A' | A_2 A_1$

Putting Az in A1 production

 $A_1 \longrightarrow A_2 A_2 / a$

 $A_1 \longrightarrow a A_1 A' A_2 | b A' A_2 | a A_1 A_2 | b A_2 | a$

 $A' \longrightarrow aA, A'A, A' | bA'A, A' | aA, A' | bA, A' | aA, A'A, bA'A, | aA, A, | bA, | bA'A, | bA, |$

 $P: A_1 \longrightarrow aA_1A'A_2 \mid bA'A_2 \mid aA_1A_2 \mid bA_2 \mid a$

 $A_2 \longrightarrow aA_1 A' | bA' | aA_1 | b$

 $A' \longrightarrow aA_1 A'A_1 A' \mid bA'A_1 A' \mid aA_1 A_1 A' \mid bA_1 A'$ $\mid aA_1 A'A_1 \mid bA'A_1 \mid aA_1 A_1 \mid bA_1$