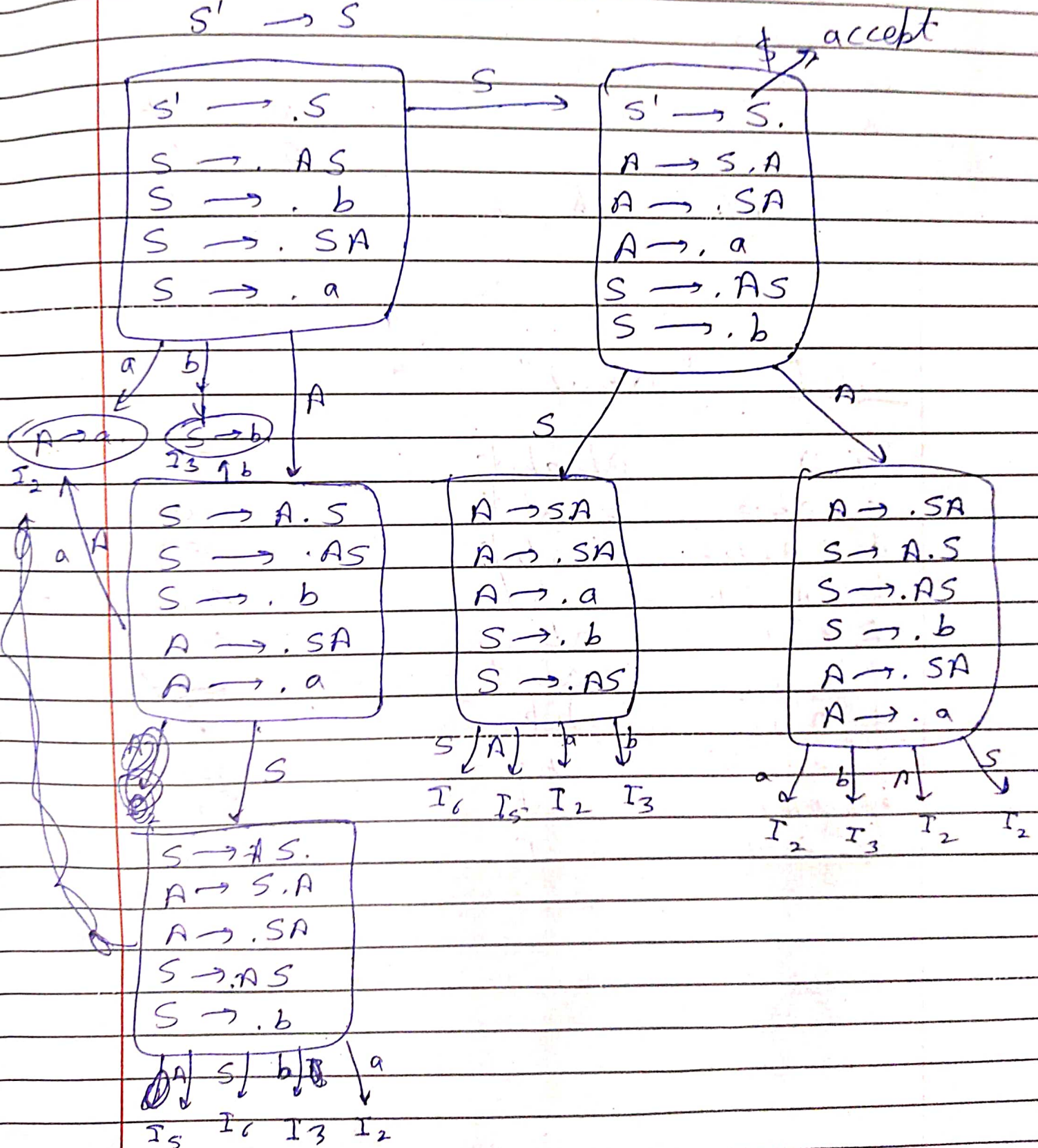


# Tutorial 4

$$1) \quad S \rightarrow AS \mid b$$

$$A \rightarrow SA \mid a$$

$$S' \rightarrow S$$



	a	b	\$	A	S
I <sub>1</sub>	S <sub>4</sub>	S <sub>3</sub>		2	1
I <sub>1</sub>	S <sub>4</sub>	S <sub>3</sub>		5	6
I <sub>2</sub>	S <sub>4</sub>	S <sub>3</sub>		2	7
I <sub>3</sub>	r <sub>2</sub>	r <sub>1</sub>	r <sub>1</sub>		
I <sub>4</sub>	89/r <sub>5</sub>	89/r <sub>3</sub>			
I <sub>5</sub>	S <sub>4</sub>	S <sub>3</sub>		2	7
I <sub>6</sub>	S <sub>4</sub>	S <sub>3</sub>		5	6
I <sub>7</sub>	S <sub>4</sub> /r <sub>1</sub>	S <sub>3</sub> /r <sub>1</sub>	r <sub>1</sub>	5	6

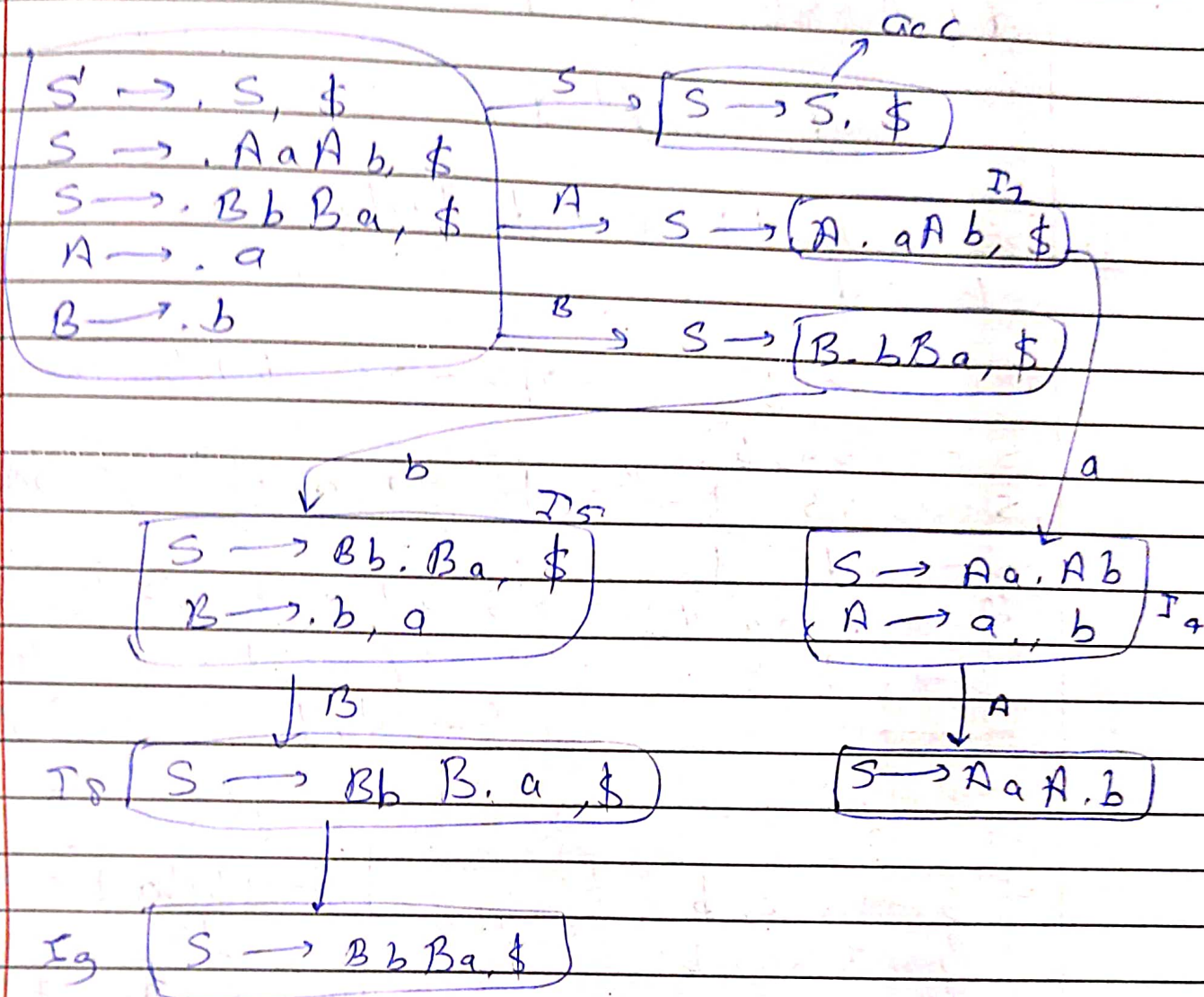
Input      " ab ab "

\$ 0	ab ab \$	S <sub>4</sub>
\$ 0 <del>ab</del>	ab ab \$	A <sub>4</sub>
\$ 0 A <sub>2</sub> b <sub>3</sub>	b ab \$	S <sub>3</sub>
\$ 0 A <sub>2</sub> S <sub>7</sub>	ab \$	r <sub>2</sub>
\$ 0 S <sub>1</sub>	ab \$	r <sub>1</sub>
\$ 0 S <sub>1</sub> a <sub>4</sub>	ab \$	<del>S<sub>4</sub></del>
\$ 0 A <sub>2</sub>	b \$	r <sub>3</sub>
\$ 0 A <sub>2</sub> b <sub>3</sub>	b \$	r <sub>3</sub>
\$ 0 A <sub>2</sub> S <sub>7</sub>	\$	S <sub>3</sub>
\$ 0 S <sub>1</sub>	\$	acc





Q8

 $S \rightarrow AaAB \mid BbBa$  $A \rightarrow \epsilon$  $B \rightarrow \epsilon$ 

	a	b	\$	A	B	\$
$I_0$	r3	ra		2	3	1
$I_1$			acc			
$I_2$	SL					
$I_3$		S7				
$I_4$		r3		S		
$I_5$		S6				
$I_6$			r1			
$I_7$	ra			B		
$I_8$	S4					
$I_9$			r2			

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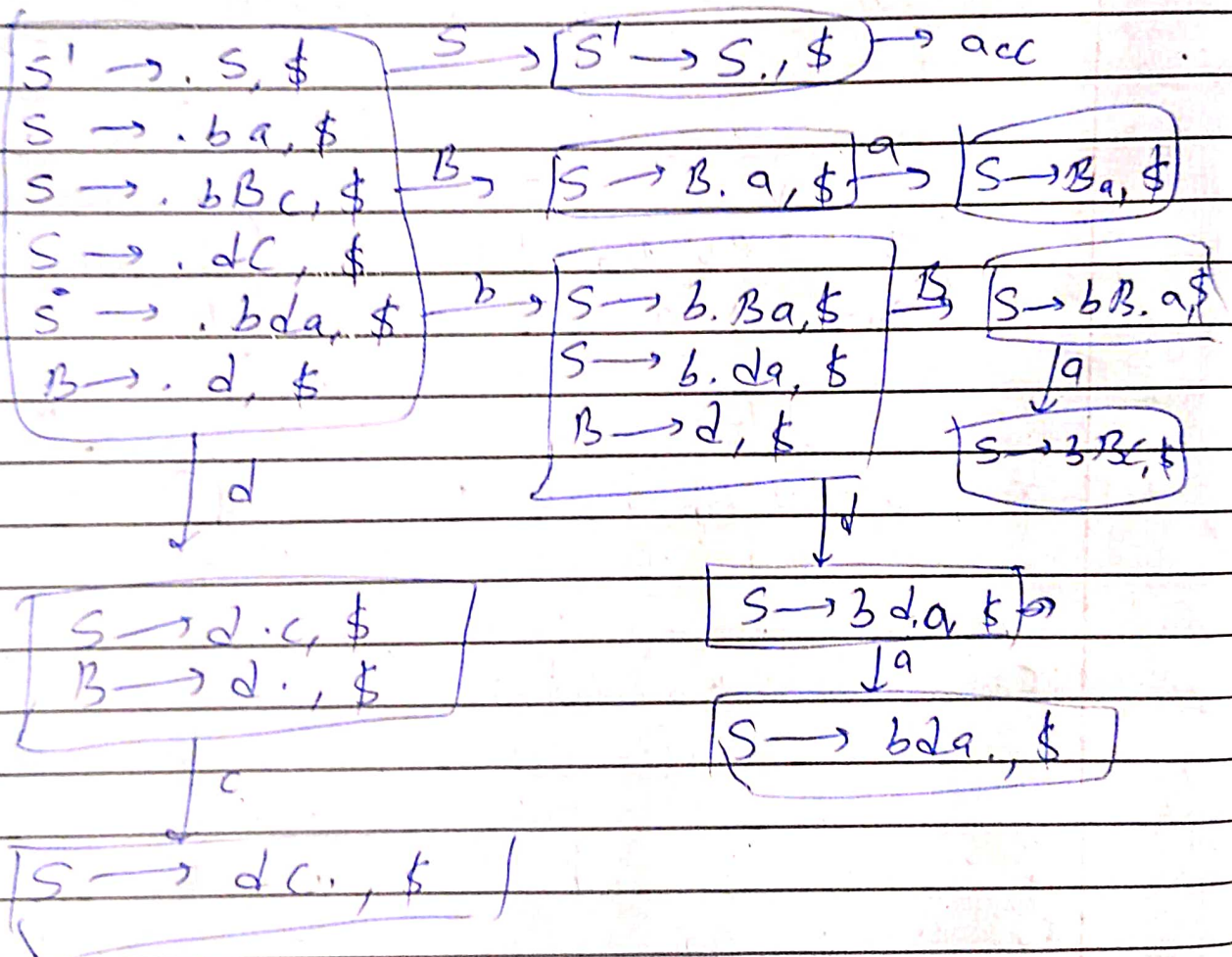
54

a bb f

Not accepted

31

$S \rightarrow Ba | bBe | dc | bda$

$$B \rightarrow d$$


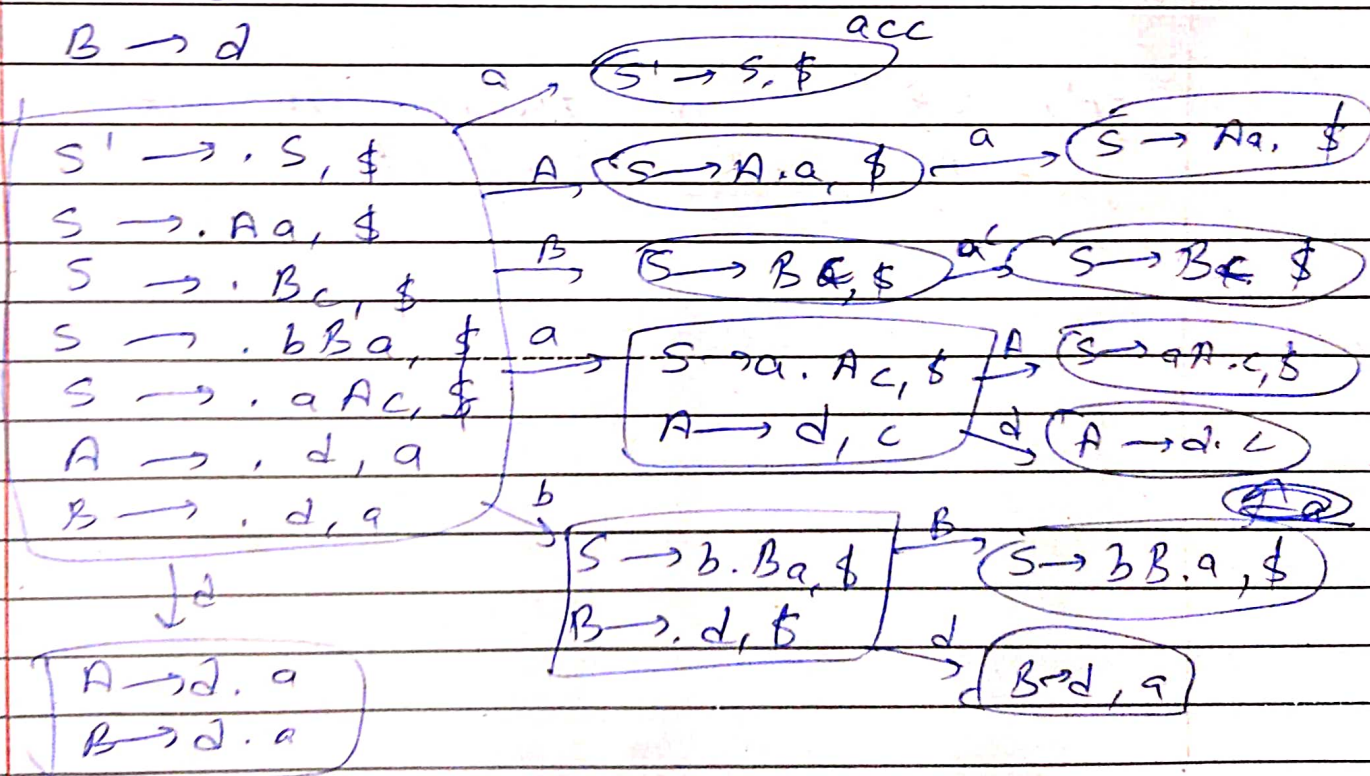


	a	b	c	d	\$	S	B
$I_0$		$S_3$		$S_4$		1	2
$I_1$					Acc		
$I_2$							
$I_3$	$S_5$					6	
$I_4$				$S_7$			
$I_5$	$r_4$	$s_8$					
$I_6$				$r_1$			
$I_7$			$s_9$				
$I_8$	$s_{10}$		$r_5$				
$I_9$				$r_3$			
$I_{10}$				$r_2$			

④  $S \rightarrow Aa | aAc | Bc | bBa$

$A \rightarrow d$

$B \rightarrow d$



	a	b	c	d	f	S	A	B
$I_0$	S <sub>4</sub>	S <sub>4</sub>		S <sub>8</sub>		1	2	3
$I_1$					acc			
$I_2$	S <sub>7</sub>							
$I_3$			S <sub>8</sub>					
$I_4$			r <sub>5</sub>	S <sub>10</sub>		7		
$I_5$	r <sub>6</sub>			r <sub>12</sub>				11
$I_6$	r <sub>5</sub>		r <sub>11</sub>					
$I_7$				r <sub>1</sub>				
$I_8$				r <sub>3</sub>				
$I_9$			r <sub>13</sub>					
$I_{10}$			r <sub>15</sub>					
$I_{11}$	r <sub>11</sub>							
$I_{12}$	r <sub>6</sub>							
$I_{13}$				r <sub>2</sub>				
$I_{14}$				r <sub>9</sub>				

It's LR(1) as there is no  
S-R / R-R conflict