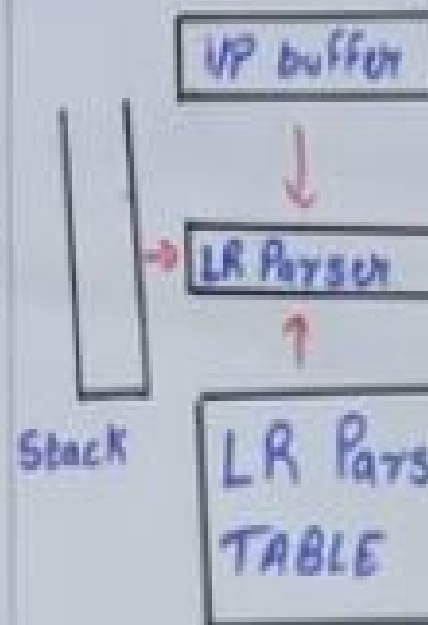
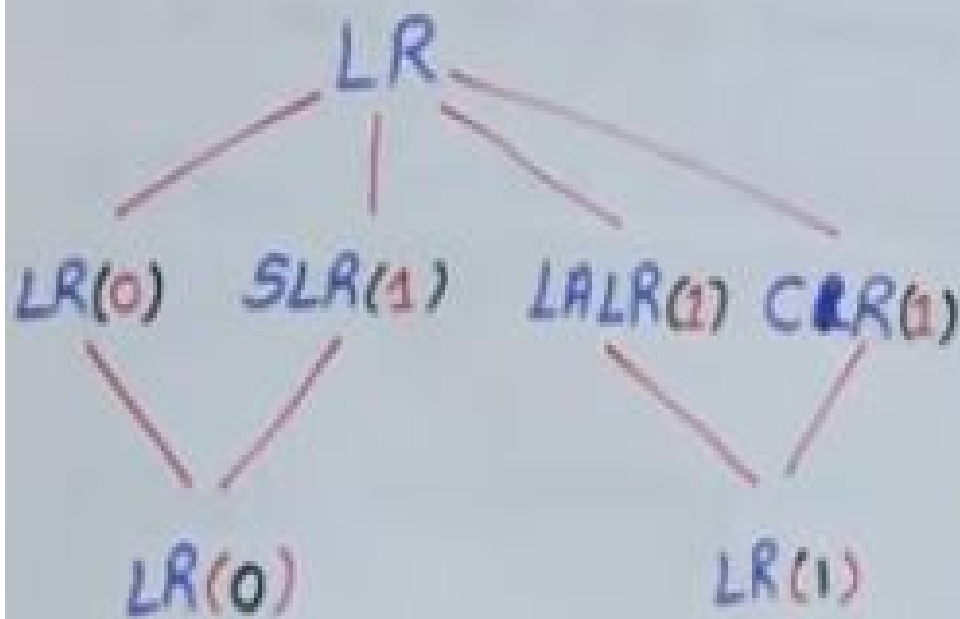


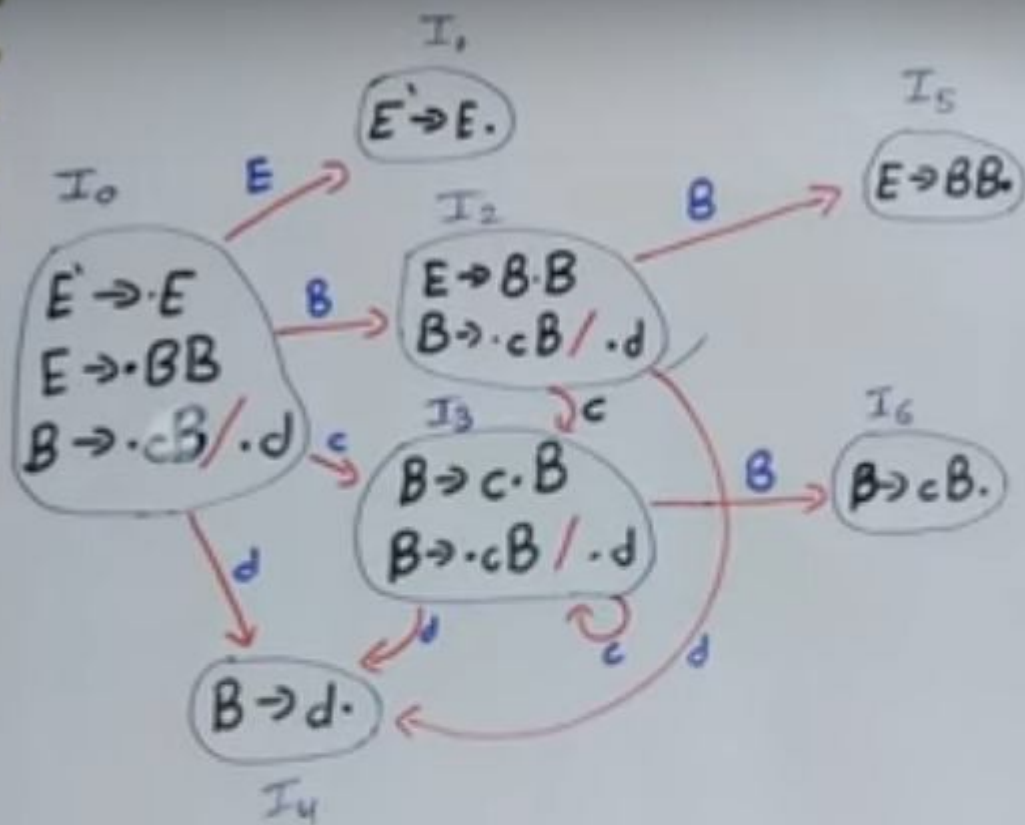
# LR Parsers



Bottom UP Parser

## Steps to Solve LR(0) Sums

1. Augment the given grammar
2. Draw Canonical Collection of LR(0) item/DP
3. Number the Production
4. Create the parsing table
5. Stack implementation
6. Draw parse tree



4) Parsing

State

$I_0$

$I_1$

$I_2$

$I_3$

$I_4$

$I_5$

$I_6$

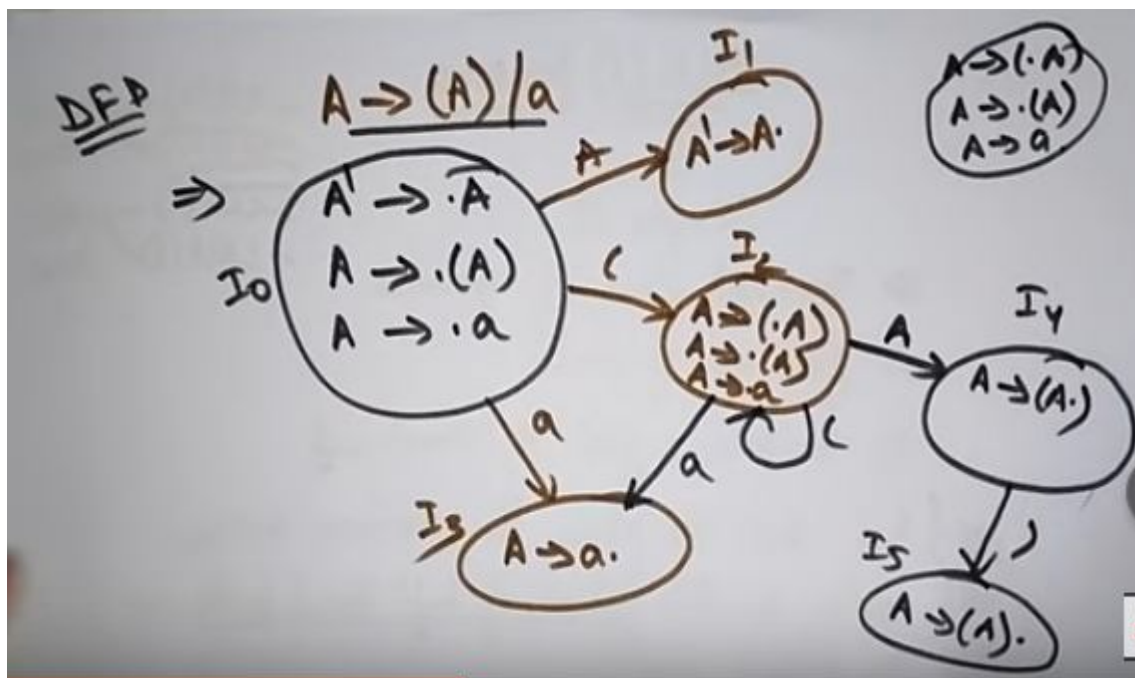
Step 5)

Step 3) Number the Production

$E' \rightarrow E$   
 $E \rightarrow BB$  ①  
 $B \rightarrow cB \mid d$  ② ③

shift	id*id+id\$	shift 5
\$0	*id+id\$	reduce F→id
\$0id\$	*id+id\$	reduce T→F
\$0F\$	*id+id\$	shift 7
\$0T\$	*id+id\$	shift 5
\$0T2\$	id+id\$	shift 5
\$0T2*7\$	+id\$	reduce F→id
\$0T2*7id\$	+id\$	reduce T→F
\$0T2*7F\$	+id\$	reduce E→T
\$0T2\$	+id\$	shift 6
\$0E\$	+id\$	shift 6
\$0E1\$	id\$	shift 1
\$0E1+6\$	\$	reduce F→id
\$0E1+6id\$	\$	reduce T→F
\$0E1+6F\$	\$	reduce E→T
\$0E1+6T\$	\$	shift 1
\$0E1\$	\$	shift 1

<https://www.youtube.com/watch?v=sWBSQoKNDUo&t=716s>



Parsing Table

State	<u>Action</u>				Goto
	a	(	)	\$	A
0	s <sub>3</sub>	s <sub>2</sub>			1
1				Accept	
2	s <sub>3</sub>	s <sub>2</sub>			4
3			r <sub>2</sub>	r <sub>2</sub>	
4			s <sub>5</sub>		
5			r <sub>1</sub>	r <sub>1</sub>	

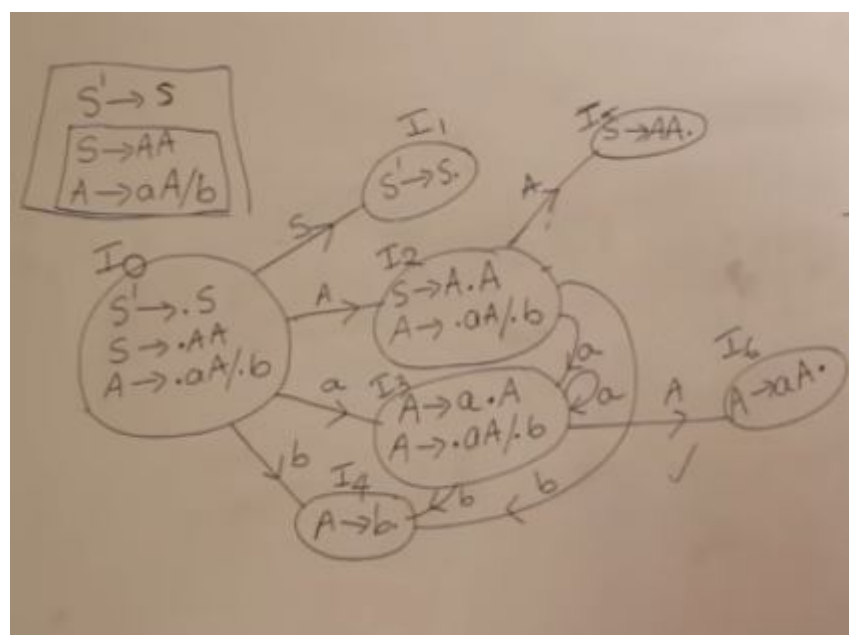
i/p string parsing - (a) \$

<u>Step</u>	<u> parsing Stack</u>	<u>i/p</u>	<u>Action</u>
1.	\$ 0	(a) \$	Shift 2
2.	\$ 0 ( 2	a) \$	Shift - 3
3.	\$ 0 ( 2 (a 3	) \$	Reduce r <sub>2</sub>
4.	\$ 0 ( 2 A 4	) \$	Shift - 5 A → a
5.	\$ 0 ( 2 A 4 ) 5	\$	Reduce r <sub>1</sub> A → (A)
6.	\$ 0 A 1	\$	Accept

ip string parsing - (a) \$

step	parsing Stack	ip	Action
1.	\$ 0	(a) \$	Shift 2
2.	\$ 0 (2	a) \$	Shift - 3
3.	\$ 0 (2 a 3	) \$	Reduce $\gamma_2$ $A \rightarrow a$
4.	\$ 0 (2 A 4	) \$	Shift - 5
5.	\$ 0 (2 A 4) 5	\$	Reduce $\gamma_1$ $A \rightarrow (A)$
6.	\$ 0 A 1	\$	Accept

Autoplay is off



LR(0)

	action			Goto i	
	a	b	\$	A	S
0	S <sub>3</sub>	S <sub>4</sub>		2	1
1			accept		
2	S <sub>3</sub>	S <sub>4</sub>		5	
3	S <sub>3</sub>	S <sub>4</sub>		6	
4	r <sub>3</sub>	r <sub>3</sub>	r <sub>3</sub>		
5	r <sub>1</sub>	r <sub>1</sub>	r <sub>1</sub>		
6	r <sub>2</sub>	r <sub>2</sub>	r <sub>2</sub>		

