#### LL(1)

CF Ge	First	Follow
·S→L=RlabRlE L→*Rlid R→LlE	{*, id, a, e} {*, id, e} {*, id, e}	₹\$,=5 \$\$,=5

## LL(1) parksing Table:

TTN	=	a	b	*	id	\$
S		s abr		S->L=R	S->L=R	S>6
L				L→*R	L>id	
R	R→E			R+L	R+L	R→€

Here, there is no conflict in the parising table because there is no multiple entries in a single cell of the table. So the CFG is LL(1)

# Input string = \* id = id \$

Stack	Input	Action
\$3	* id = id \$	5->L=R
\$R=L	* 19 = 19 x	L>*R
\$ R = R*	* id = id \$	Match POP scan next
\$ R = R	ig = 198	R→L
\$ R=L	id = id &	L→1d
\$ R = id	id = id8	Match pop scan next
\$ R =	= id \$	Match pop scan next
\$ R	19 ×	R->L
\$ L	198	L→id
\$ id	19 ×	Match pop scan next
\$	\$	Accept

So here we say that input string.

\* id = id parased with the LL(1) paraser.

#### SLR(1)

Gescammera	First	Follow
S->L=R  abR   E	{*, id, α, e}	5\$5
L→ *R 1id	{*, id}	₹\$,=5
R-> L I E	{*, id, €}	₹\$,=}

Augmented grammer 
$$\rightarrow S' \rightarrow S''$$
 $S \rightarrow L = R | abR | C$ 
 $L \rightarrow *R | idG$ 
 $R \rightarrow L | C$ 
 $G'' \rightarrow S \Rightarrow L = R$ 
 $S' \rightarrow S$ 
 $S \rightarrow L = R | abR | C$ 
 $S' \rightarrow S$ 
 $S \rightarrow L = R | abR | C$ 
 $S \rightarrow L = R | abR | C$ 
 $S \rightarrow L = R | abR | C$ 
 $S \rightarrow L = R | abR | C$ 
 $S \rightarrow L = R | abR | C$ 
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 $S \rightarrow L = R | abR | C$ 
 $S \rightarrow L = R | abR | C$ 
 $S \rightarrow L = R | abR | C$ 
 $S \rightarrow L = R | abR | C$ 
 $S \rightarrow L = R | ab$ 

#### SLR(1) Paresing Table:

			ActR		GLOTO				
State	=	a	b	*	19	\$	S	L	R
0		53		S4	S5	123	1	2	
1						Accept			
2	S6								
3			S7						
4	127			54	S5	127		9	8
5	125					rc5			
6	127			S4	\$5	127		9	10
7	亿不			SA	35	127		9	11
8	124					124			
9	126					176			
10						121			
11						17.2			

Here, there is no conflict in the parsing table because there is no multiple entries in a single cell of the table. So the CFG is SLR(1)

Input straing -> \*id = id

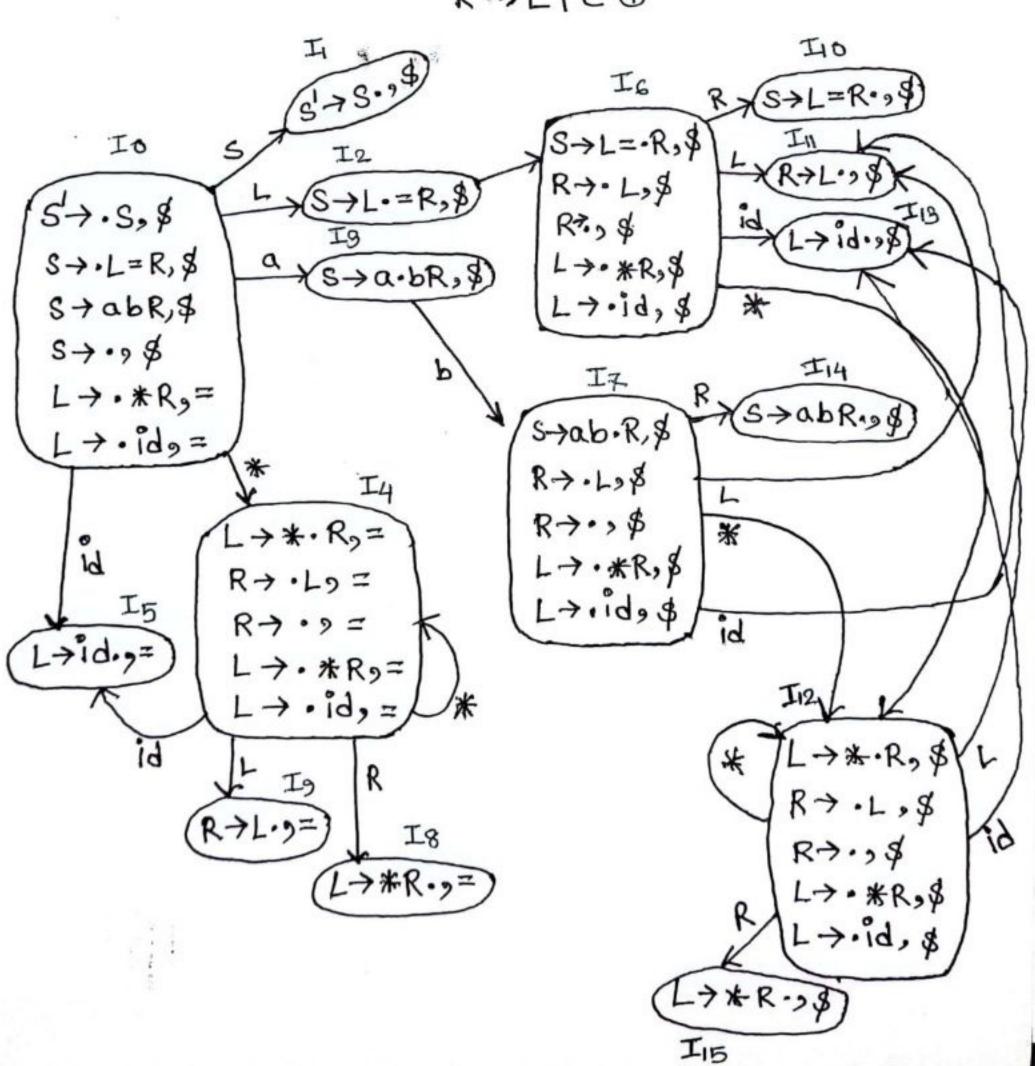
Stack	input	Action
O	* id= id\$	shift 4
0*4	id=9d\$	Shift 5
0*4105	= id \$	Reduce L→id
0*469	= id\$	Reduce R→L
0*4 R8	= id\$	Reduce L→*R
OL2	= 198	shift 6
0L2=6	id \$	Shift 5
0L2=6id5	\$	Reduce L→id
0L2=6L9	\$	Reduce R→L
OL2 =6 R10	\$	Reduce S+L=R
OS1	\$	Accept

So, herre we say that input string \* id = id paresed

~	1	D	(1)	
_	-	1	(1)	,

CFG	Firzst	Follow
S->L=RlabRIE	€*, id, α, ε,	1 \$5
L→*RI3d	€ *, id5	ર્ \$,=૬
R-> LIE	ર *, ૧૯, ૯,	₹\$,=}

Augmented grammer  $\rightarrow S' \rightarrow S @$   $S \rightarrow L = R | abR | \in @$   $L \rightarrow *R | id @$   $R \rightarrow L | \in @$ 



#### CLR(1) Parsing Table:

		Ac	tion	(	roto				
State	=	a	Ь	*	id	\$	Ş	L	R
0		53		S4	S5	tzg	1	2	
1	4242					Accept			
2.	SG								
3			S7						
4	亿不			S4	S5			9	8
5	125								
6				S12	S13	177		11	10
7				S12	S13			11	14
8	124								
9	126								
10						17.1			
11						126			
12				S12	S13	177		11	15
13						17.5			
14						172			
15		L				124			

Here, there is no conflict in the parsing table because there is no multiple entries in a single cell of the table. So the CFGz is CLR(1).

## Input straing -> \* id = id

Stack	Input	Action
0	*id=id\$	shift 4
0*4	id = id \$	Shift5
0*4185	=10\$	reduce L+id
0*419	= 1,9 &	reduce R+L
0*4R8	=id\$	Reduce L+*R
OL2	=198	shift 6
OL2 =6	id&	Shift 13
0L2=6 id13	*	reduce L-7id
0L2=6L11	\$	reduce R+L
OL2=6 R10	\$	reduce S+L=R
081	\$	Accept

so, here we say that input string \*id=id
parcsed with CLR(1) parcser.

#### LALR(1)

S→L=RlabRle L→\*Rlid R→Lle

In CLR(1) items, the number of states has increased compared with LR(0) items.

In terms of LR(0) items both I4 and I12 are same.

Also both I5 and I13 are same. Again I8 and I15 are same. Similarly both I9 and I11 are same.

So in LALR(1) paresing table, we marge these states.

- · I4, I12 -> I412
- · I5, I13 -> I513
- · I9, I11 -> I911
- · I8, I15 -> I815

### LALR(1) Parcsing Table:

			Ac	tion	(	roto			
State	=	Annual Control	b	*	19	\$	S	L	R
0		53	•	S412	S513	123	1	2	
1						Accept			
2	SG								
3			57						
412	177			5412	5513	17.7		911	815
513	125					にち			
6				5412	S513	17.7		911	10
7				5412	S513			911	14
815	124					1724			
911	126					126			
10						17.1		1,1	
14	-					72			

Here there is no conflict in the parising table because there is no multiple entries in a single cell of the table. So the CFGz is LALR(1)

# Input String: \*id=id

Stack	Input	Action
. 0	* id = id &	shift 412
0 * 412	id=id &	shift 513
0*412 id 513	= 19 \$	Reduce L+id
0*412 L911	= id \$	Reduce R+L
0*412 R815	=198	Reduce L>*R
012	= iq &	Shift 6
0L2=6	198	Shift 513
0L2=6 id 5/3	\$	Reduce L-sid
0L2=6L911	\$	Reduce R>h
0L2=6R10	\$	Reduce S-L=R
051	\$	Accept

so, here we say that input string + id = id parased with LALR(1) paraser.