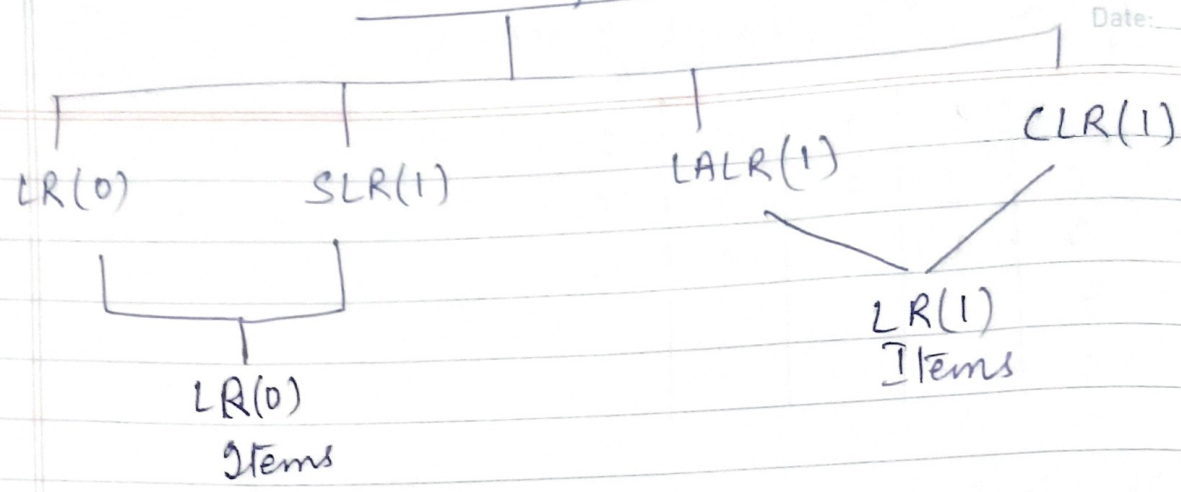


Bottom up Parsers

apsara

Date: _____



- eg:-
- ① $S \rightarrow AA$
 - ② $A \rightarrow aA$
 - ③ $A \rightarrow b$

step 1: ~~make~~ Convert into Augmented Grammar.

$$S' \rightarrow .S$$

$$S \rightarrow .AA$$

$$A \rightarrow .aA$$

$$A \rightarrow .b$$

step 2: Form LR(0) Items.

$$I_0: S' \rightarrow .S$$

$$S \rightarrow .AA$$

$$A \rightarrow .aA$$

$$A \rightarrow .b$$

$$I_1: S' \rightarrow S.$$

$$I_2: S \rightarrow A.A$$

$$A \rightarrow .aA$$

$$A \rightarrow .b$$

$$I_4: A \rightarrow b.$$

$$I_5: S \rightarrow AA.$$

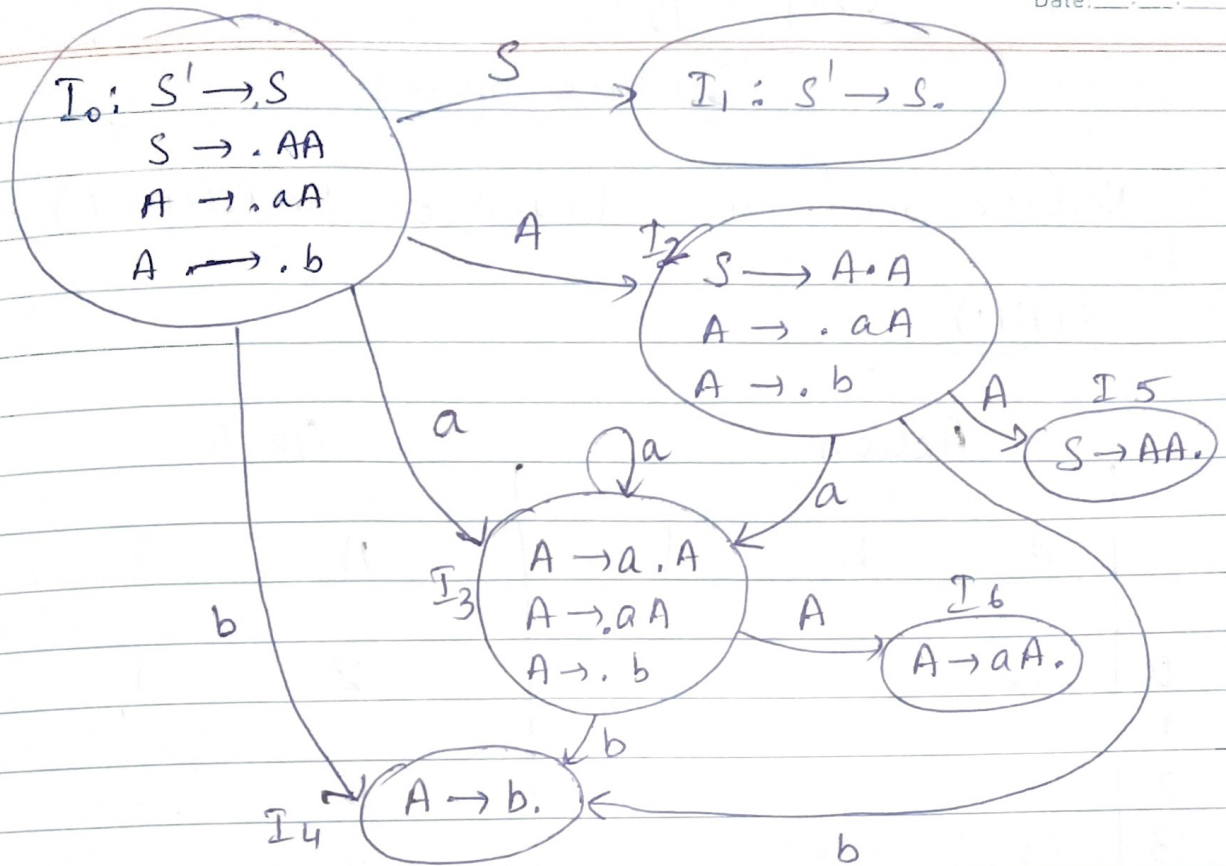
$$I_6: A \rightarrow aA.$$

$$I_3: A \rightarrow a.A$$

$$A \rightarrow .aA$$

$$A \rightarrow .b$$

Step 3: Construct the DFA of LR(0) items.



Step 4: Construct LR(0) parsing table

	Action			Go To	
	a	b	\$	A	S
0	S ₃	S ₄		2	1
1			accept		
2	S ₃	S ₄		5	
3	S ₃	S ₄		6	
4	r ₃	r ₃	r ₃		
5	r ₁	r ₁	r ₁		
6	r ₂	r ₂	r ₂		

FOR SLR(1) Table

apsara

Only difference is in step 4
"reduce moves"

Date: _____

Reduce moves are based on the FOLLOW() Items.

SLR(1)

Action

Go To

	a	b	\$	A	S
0	S ₃	S ₄		2	1
1			accept		
2	S ₃	S ₄		5	
3	S ₃	S ₄		6	
4	r ₃	r ₃	r ₃		
5			r ₁		
6	r ₂	r ₂	r ₂		

I₄: A → b.

Follow(A) = {a, b, \$}

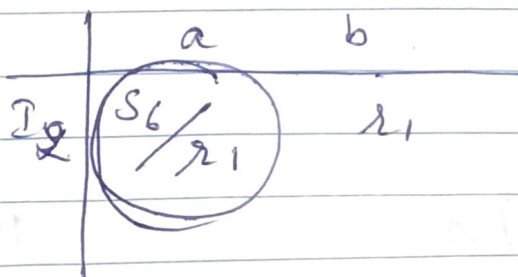
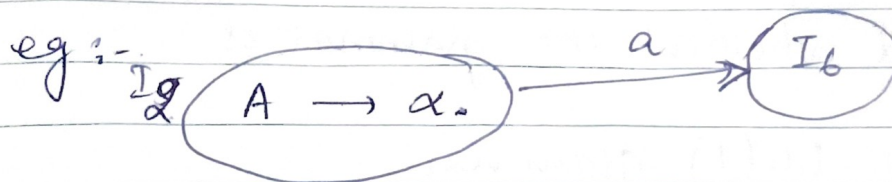
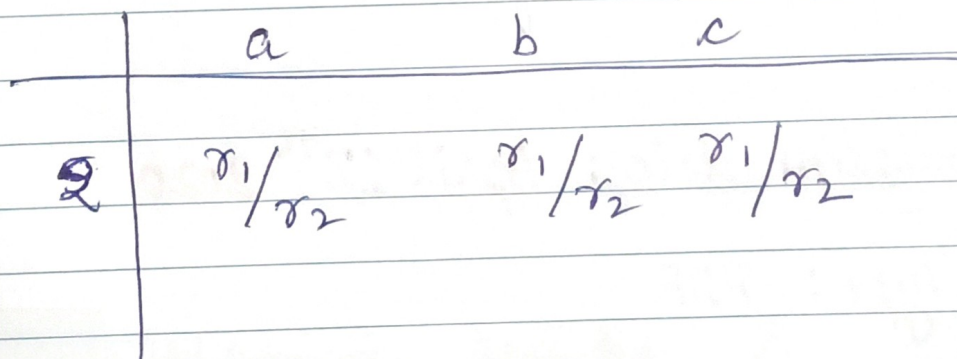
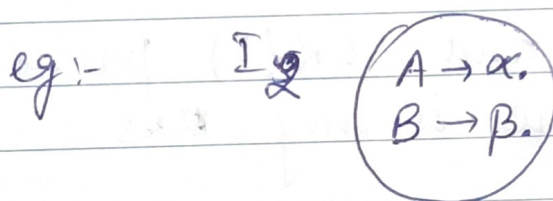
I₅: S → AA.

Follow(S) = {\$}

I₆: A → AA.

Follow(A) = {a, b, \$}

★

S-R conflictR-R conflict

A grammar cannot be LR(0) if there is SR or RR conflict.