SLR(1)

Simple LR(1).

Date - 18/10/22

L → Scan left to right

R → Drive Right most derivation in Reverse order.

(1) Look ahead, how many symbol see for make a decision that is true (1).

- SLR(1) take LR(0) collection of items

Construction of SLR(1) Parsing table

Steps

(1) Writing Augmented grammar.

(2) LR(0) collection of items to be found

(3) Defining 2 function; Goto(NT) & Action (T)

(4) Create Parsing table.

(5) Check weather string(w) is accepted or not.

Question - Construct SLR(1) parsing table for given CFG. $S \rightarrow AA$
$A \rightarrow aA/b$
And check string $w(aabb)$ is accepted by this above grammar or not.

Answer Given the production and give the numbering of production.

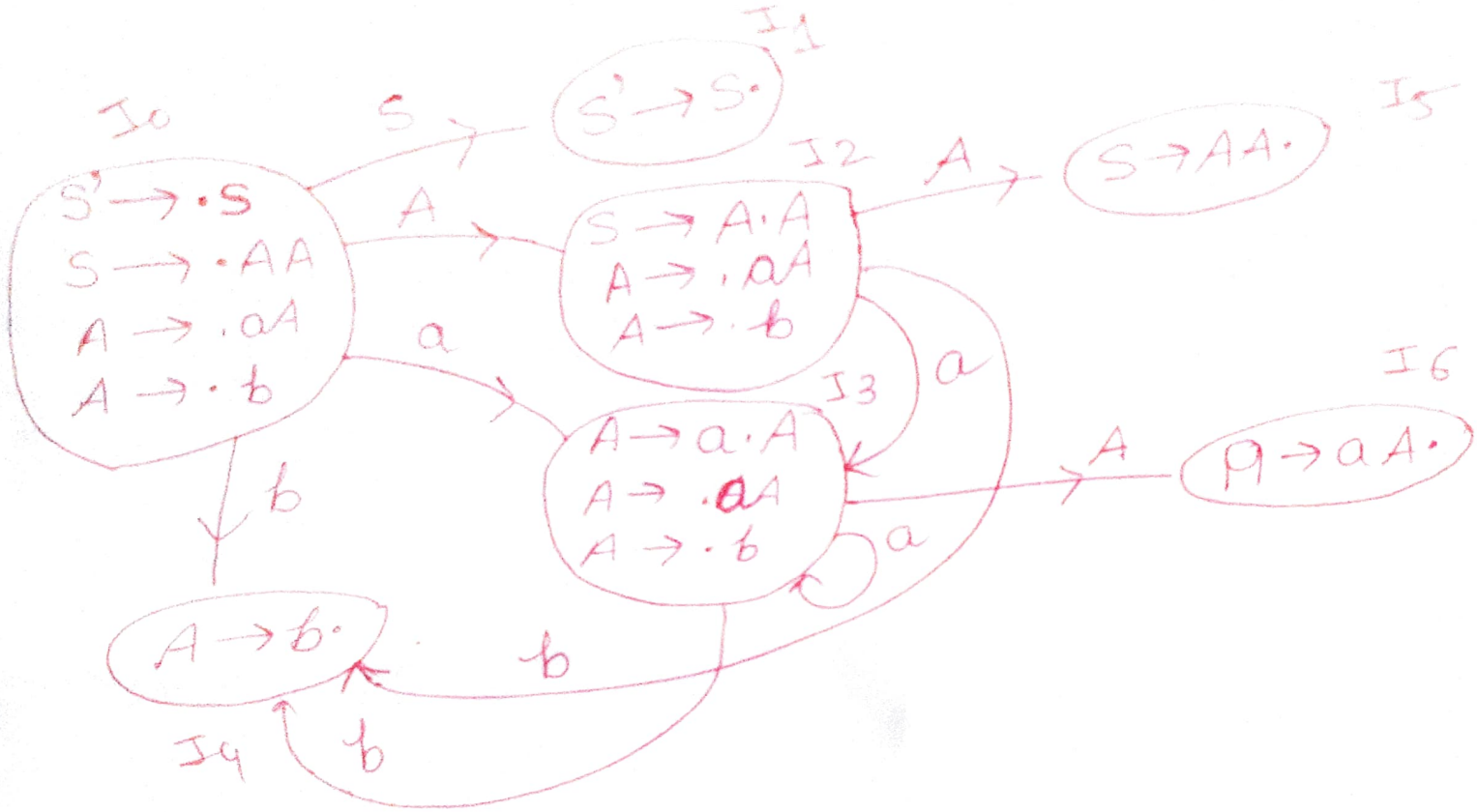
$S \rightarrow AA$ — production (1)
$A \rightarrow aA$ — production (2)
$A \rightarrow b$ — production (3)

Step-1 Find the Augmented Grammar.

$S' \rightarrow S$
$S \rightarrow AA$
$A \rightarrow aA$
$A \rightarrow b$

Step-2 Find LR(0) Items collections

So, find LR(0) items using augmented grammar.


I0
S' → ·S
S → ·AA
A → ·aA
A → ·b
S
I1
S' → S·
A
I2
S → A·A
A → ·aA
A → ·b
A
I5
S → AA·
a
I3
A → a·A
A → ·aA
A → ·b
a
a
A
I6
A → aA·
b
A → b·
I4
b
b
b

PL-7

Parsing Table

Step-4

State	Action(T)			Goto(NT)	
	a	b	$	S	A
0	S_3	S_4		1	2
1			Accepted		
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		

find follow for non-terminals for table for reduce purpose, where we fill (r).

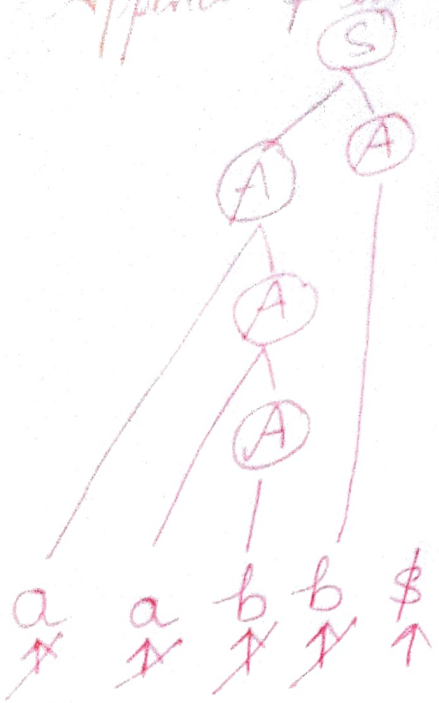
	First	follow
S→AA	(a, b)	{$}
A→aA/b	(a, b)	{$, a, b}

P-7-1

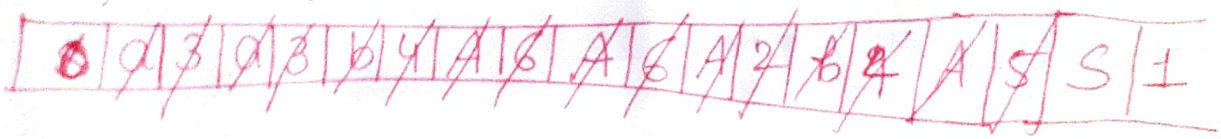
"p-5"

w = aabb

Append $ into string.



a a b b $



Accepted.

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