LR(0) Parser

Wednesday, January 22, 2025 10:15 PM

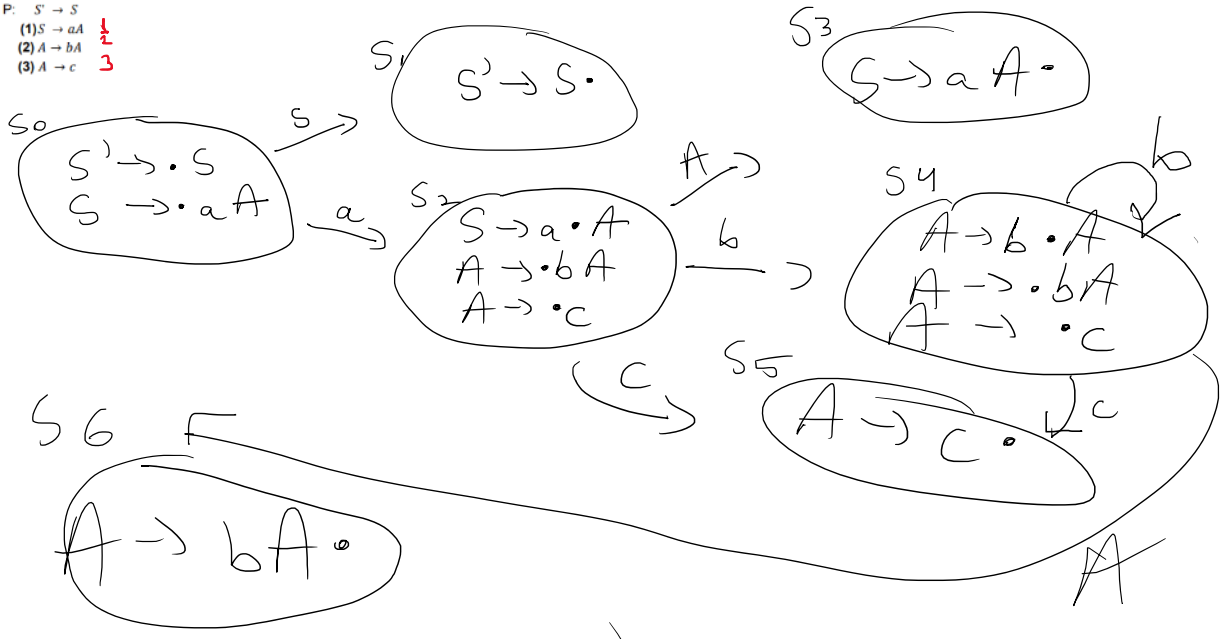
Ex. $G = (\{S', S, A\}, \{a, b, c\}, P, S')$

P: $S' \to S$

(1) $S \to aA$ 1

(2) $A \to bA$ 2

(3) $A \to c$ 3



$ I0

$ I0 a

$ I0 a S

$ I0 a S

$ I0 a S2

$ I0 a S2

$ I0 a S

$ I0 a

Closure $(S' \to .S)$

$\Rightarrow$ $S' \to .S$, $S \to .aA$, $S \to .A$

Action

Items	a	b	c	$	S	A
S_0	shift					
S_1	accept					
S_2	shift					
S_3	reduce 1					
S_4	shift					
S_5	reduce 3					

goto

a	b	c	$	S	A
S_2					
	S_4	S_5			
	S_4	S_5			

Stack

Input

Output

abbc$

ε

bbc$

ε

S2

bc$

S2bS4

c$

S2bS4bS4

$

bS4bS4cS5

bS4bS4AS6

3

bS4AS6

23

S2AS3

223

1223

$S0S1

S A

$accept

1

S3

S6

S_6 reduce 2

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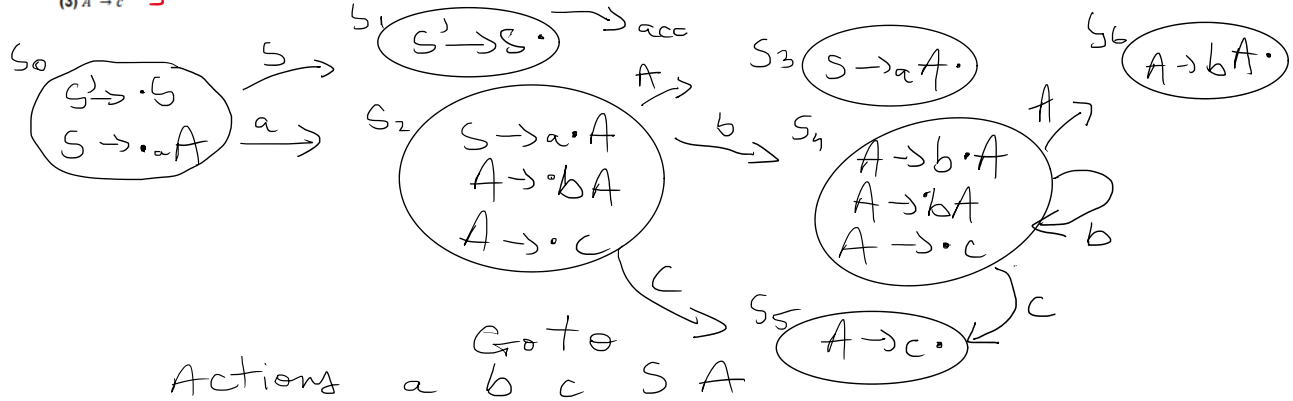

Goto

Actions	a	b	c	S	A
S_0 shift	2			1	
S_1 accept					
S_2 shift		4	5		3
S_3 reduce 1					
S_4 shift		4	5		6
S_5 reduce 3					
S_6 reduce 2					

Stack	Input Stack	Output Band
$0	abbc$	ε
$ $S_0 a S_2$	bbc$	ε
$ $S_0 a S_2 b S_4$	bc$	ε
$ $S_0 a S_2 b S_4 b S_4$	c$	ε
$ $S_0 a S_2 b S_4 b S_4 c S_5$	$	ε
$ $S_0 a S_2 b S_4 b S_4 A S_6$	$	3
$ $S_0 a S_2 b S_4 A S_6$	$	23
$ $S_0 a S_2 A S_3$	$	223

$ S_0 a S_2 A S_3

$ $S_0 S S_1$

$ accept

* 22)

$ (223)

$ 1223