a)

$X \to Y z \mid a$

$Y \to bZ \mid \lambda$

$Z \to \lambda$

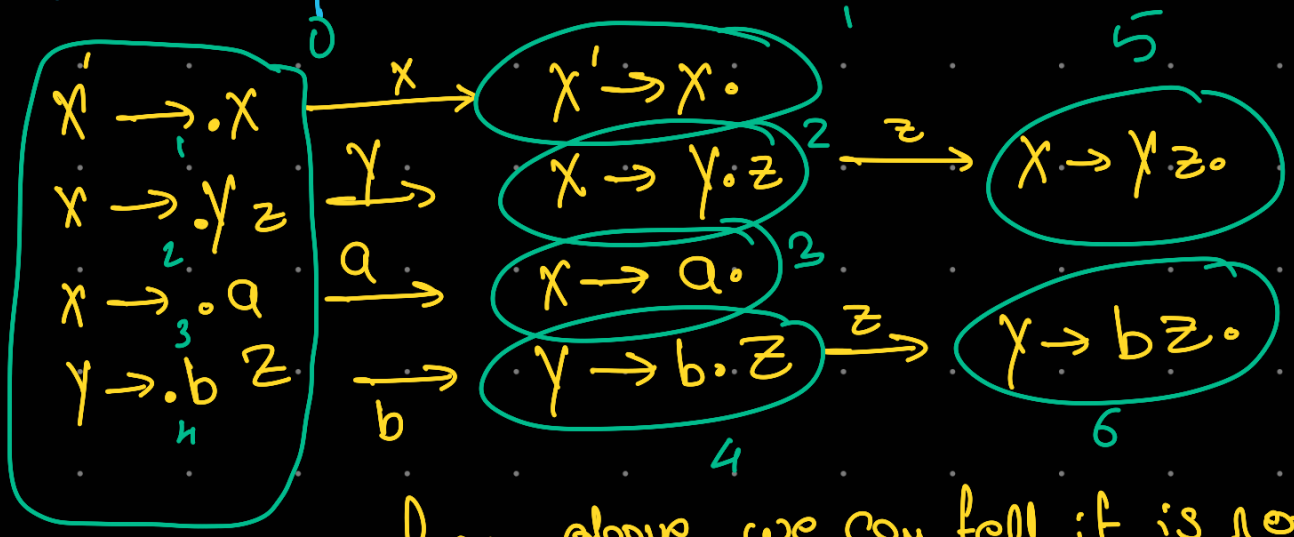
LL(1) or LR(0) or SLR(1)?

| | first | follow |
|---|---|---|
| X | {a, b, z} | {$} |
| Y | {b, λ} | {$, z} |
| Z | {λ} | {z} |

| | a | b | z | $ |
|---|---|---|---|---|
| X | X→a | X→Yz | X→Yz | |
| Y | | Y→bz | Y→λ | |
| Z | | | Z→λ | |

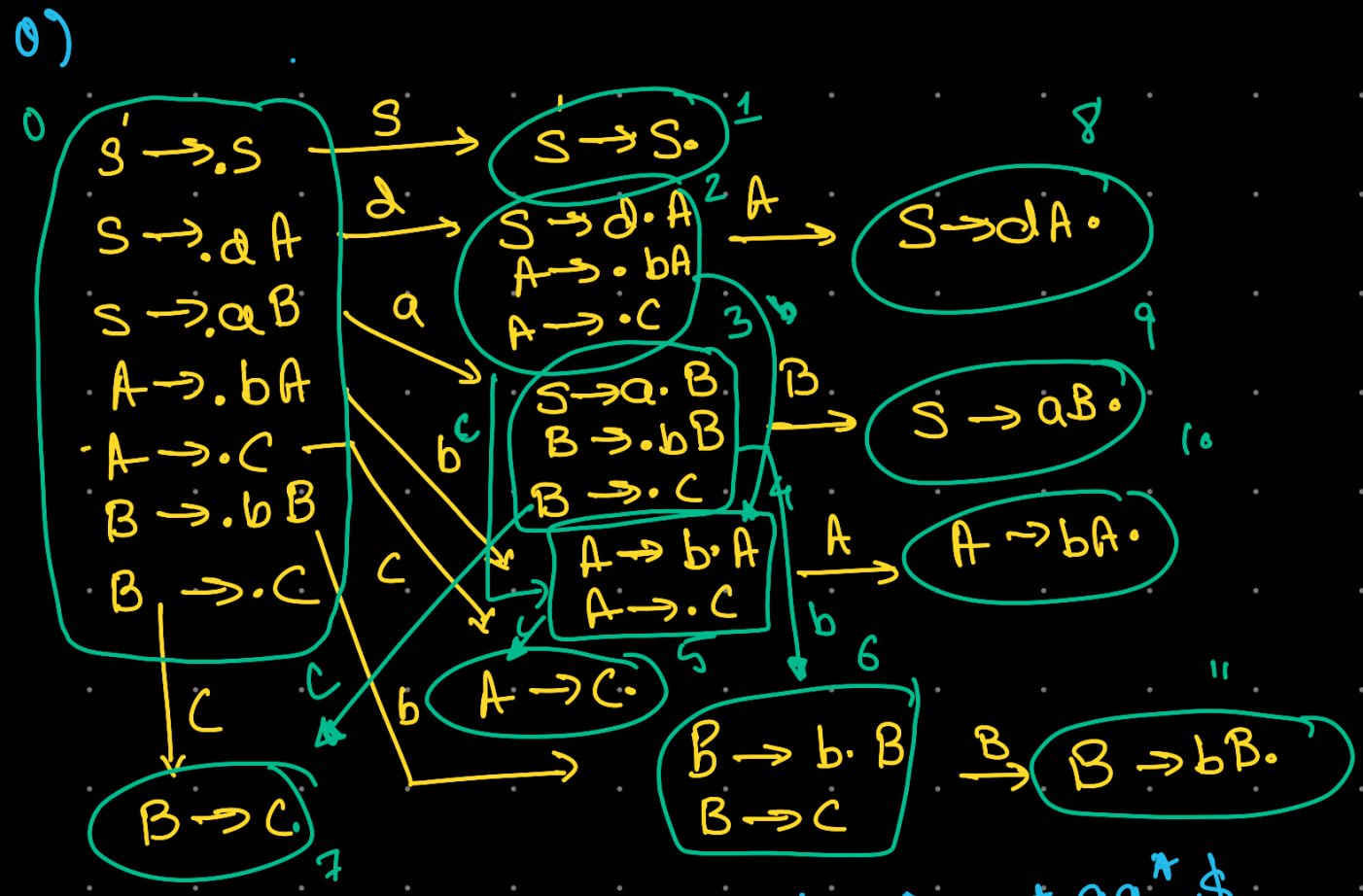
⇒ The given grammer is LL(0)

b) Check if the above is LR(0) or SLR(0)

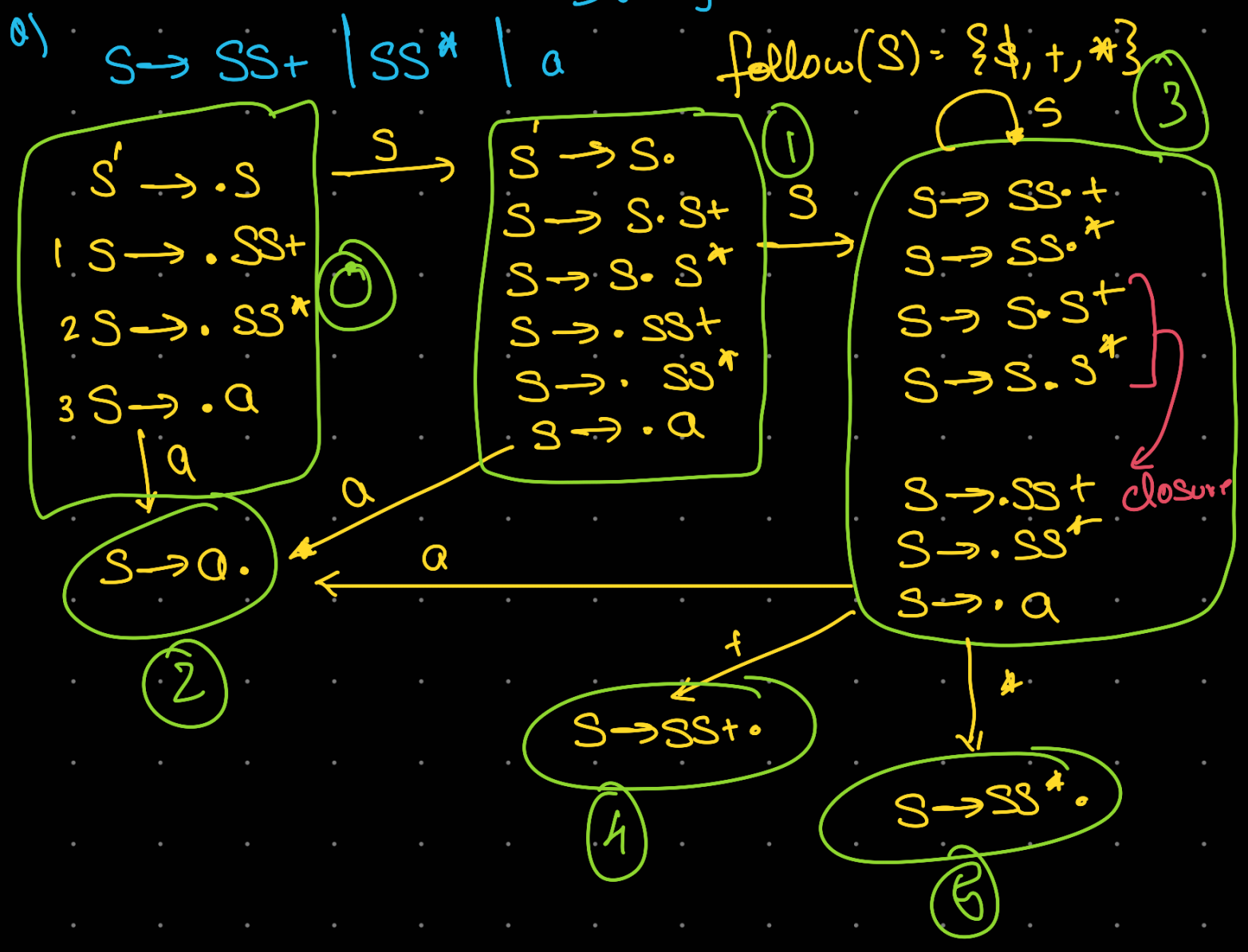



From above we can tell it is not LR(0) ⇒ It maybe in SLR(0)

The given problems follow above shows it is not SLR(1) grammer either.


0)
0
S' → .S
S → .dA
S → .aB
A → .bA
A → .C
B → .bB
B → .C
S
d
a
b
C
C
C
b
S' → S.
1
S → d.A
A → .bA
A → .C
2
A
S → dA.
8
S → a.B
B → .bB
B → .C
3
B
S → aB.
9
A → b.A
A → .C
4
A
A → bA.
10
A → C.
5
b
B → b.B
B → C
6
B
B → bB.
11
B → C.
7

String → aa+aa*$


a)
S → SS+ | SS* | a
follow(S) = {$, +, *}
S' → .S
1 S → .SS+
2 S → .SS*
3 S → .a
S
0
S' → S.
S → S.S+
S → S.S*
S → .SS+
S → .SS*
S → .a
1
S
S → SS.+
S → SS.*
S → S.S+
S → S.S*
3
S
S → .SS+
S → .SS*
S → .a
closure
a
S → a.
2
a
a
+
S → SS+.
4
*
S → SS*.
5

| state | Action | | | | goto |
|---|---|---|---|---|---|
| | a | + | * | $ | S |
| 0 | 2 | | | | 1 |
| 1 | 2 | | | acc | 3 |
| 2 | | $r_3$ | $r_3$ | $r_3$ | |
| 3 | 2 | 4 | 5 | | 3 |
| 4 | | $r_1$ | $r_1$ | $r_1$ | |
| 5 | | $r_2$ | $r_2$ | $r_3$ | |

$0 a a + a a * $ shift 2

$0 a 2 a + a a * $