16/10/20

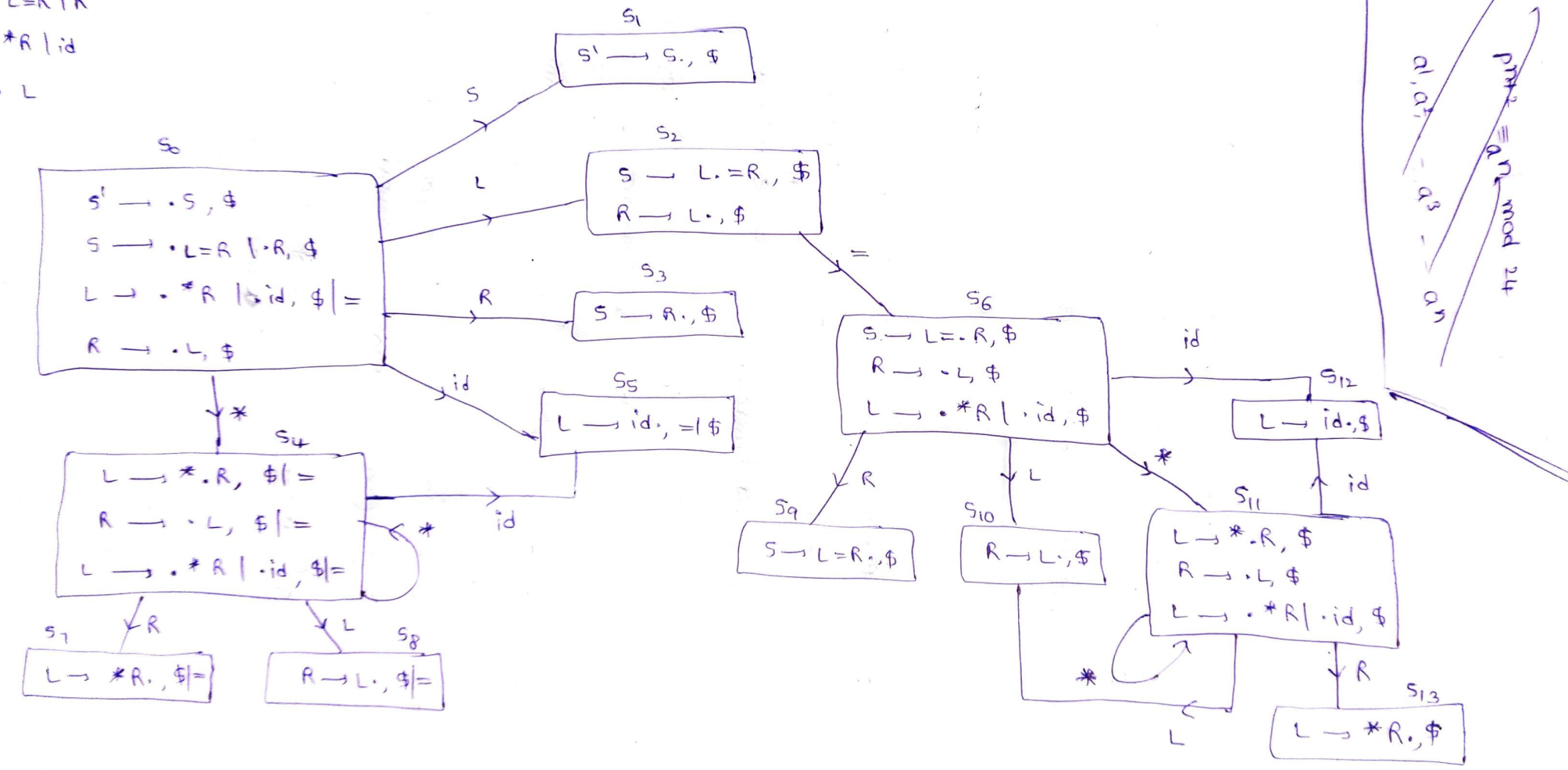
LR(1) Automation

$S' \rightarrow S$

$S \rightarrow L=R \mid R$

$L \rightarrow *R \mid id$

$R \rightarrow L$



1 S' → S

2 S → L = R |

3 R

4 L → *R |

5 id

6 R → L

Parse table

	ACTION				GOTO		
	$	=	*	id	S	L	R
0			S4	S5	1	2	3
1	Acc						
2	R6	S6					
3	R3						
4			S4	S5		8	7
5	R5	R5					
6			S11	S12		10	9
7	R4	R4					
8	R6	R6					
9	R2						
10	R6						
11			S11	S12		10	13
12	R5						
13	R4						

The grammar is LR(1) since no conflict arised in the parse table.

Description:

① DFA:

For each item $[A \to \alpha . B\beta, a]$ in I,
for each production $B \to \gamma$,
for each terminal b in First(βa),
add $[B \to . \gamma, b]$ to set I.

② Parse table:

→ GOTO states found by transitions over non-terminal symbols.

→ In Action state:

i) If $[S' \to S., \$] \in I$; set accept.

ii) If $[A \to \alpha., a]$, set R($A \to \alpha$) ∀ a

iii) shift state.no is given for all transitions over terminal symbols.