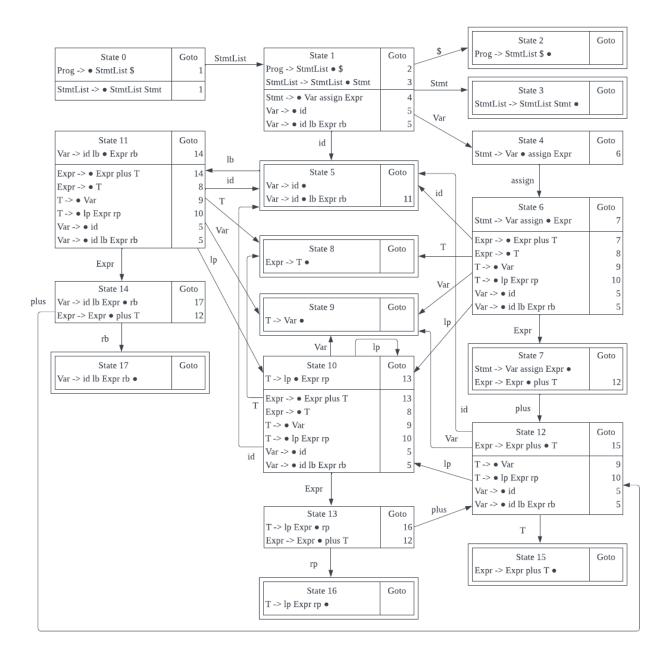
2023 NCKU CSIE Compiler Quiz 2

1. (25%) Build the CFSM for the following grammar:

- 2. (25 %) Show the SLR(1) parse table for the CFSM constructed in the above problem.
- 3. (25 %) A grammar for a simplified language that allows conditional statements follows:

Explain why the grammar is or is not LALR(1).

4. (25 %) Let S_1 , S_2 , S_3 , and S_4 denote the classes of grammars that can be parsed by LR(0), LR(1), LALR(1), and SLR(1) parsers, respectively. Please use a Venn diagram to illustrate the relationships among these four sets.



2.

State	assign	id	lb	rb	plus	lp	rp	\$	Prog	StmtList	Stmt	Var	Expr	T
0									accept	1				
1		5						2			3	4		
2								1						
3		2						2						
4	6													
5	4	4	11	4	4		4	4						
6		5				10						9	7	8
7		3			12			3						
8		7		7	7		7	7						
9		8		8	8		8	8						
10		5				10						9	13	8
11		5				10						9	14	8
12		5				10						9		15
13					12		16							
14				17	12									
15		6		6	6		6	6						
16		9		9	9		9	9						
17	5	5		5	5		5	5						

Rule 2和3的ItemFollow皆存在else。
因此存在shift-reduce conflict, 本題文法並非LALR(1)。

4.

