

## Chapter 5 – HW03

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### Homework 3

5.4.4 解:

- (1)

$$\begin{aligned} S \rightarrow \text{if}(C)S_1 \text{ else } S_2 \quad & L_1 = \text{new}() \\ & L_2 = \text{new}() \\ & C.\text{true} = L_1 \\ & C.\text{false} = L_2 \\ & S1.\text{next} = S.\text{next} \\ & S2.\text{next} = S.\text{next} \\ & S.\text{code} = C.\text{code} \parallel \text{lable} \parallel L_1 \parallel S_1.\text{code} \\ & \parallel \text{goto } S.\text{next} \parallel \text{lable} \parallel L_2 \parallel S2.\text{code} \end{aligned}$$

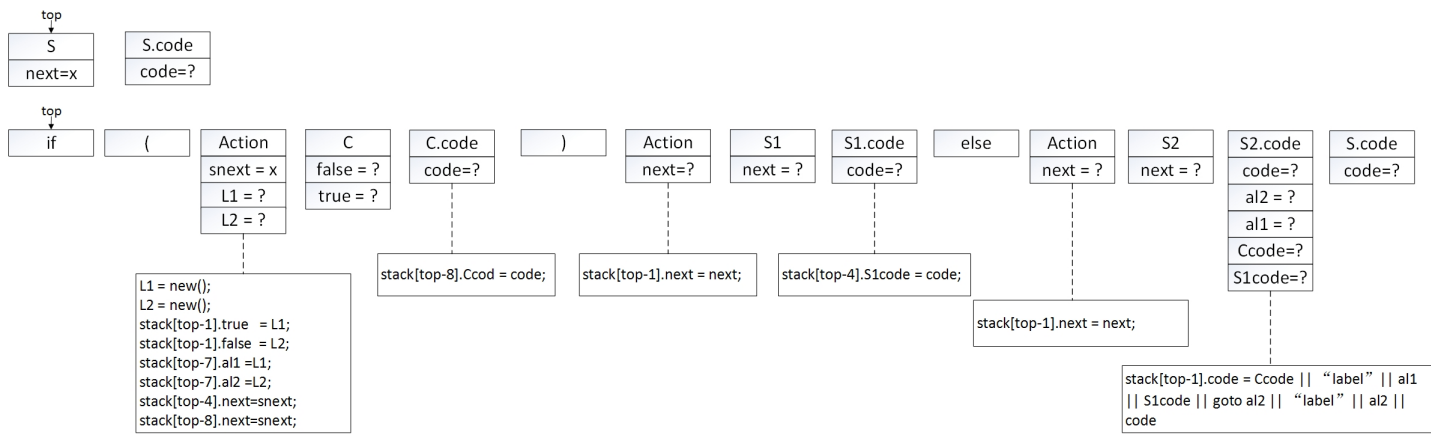
- (2)

$$\begin{aligned} S \rightarrow \text{do } S_1 \text{ while}(C) \quad & L_1 = \text{new}() \\ & L_2 = \text{new}() \\ & C.\text{true} = L_1 \\ & C.\text{false} = S.\text{next} \\ & S1.\text{next} = L_2 \\ & S.\text{code} = \text{label} \parallel L_1 \parallel S_1.\text{code} \\ & \parallel \text{lable} \parallel L_2 \parallel C.\text{code} \end{aligned}$$

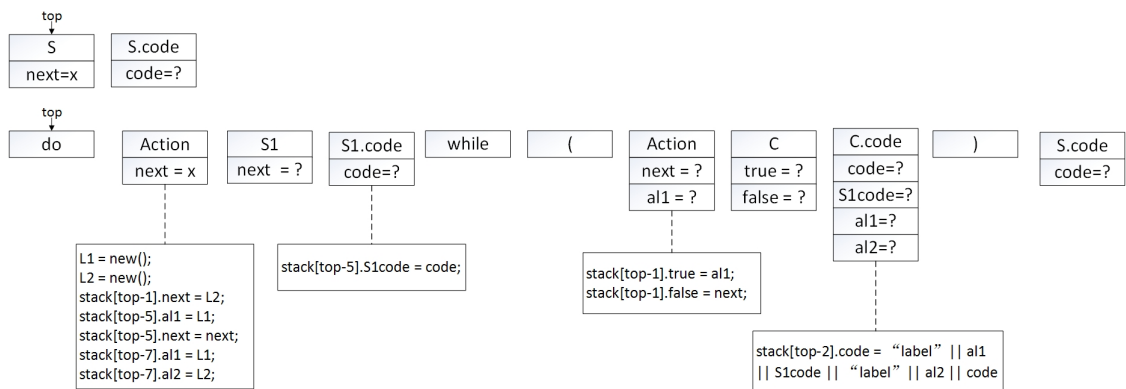
- (3)

$$\begin{aligned} S \rightarrow \{ 'L' \}' \quad & L.\text{next} = S.\text{next} \\ & S.\text{code} = L.\text{code} \\ L \rightarrow L_1 S \quad & M = \text{new}() \\ & L_1.\text{next} = M \\ & S.\text{next} = L.\text{next} \\ & L.\text{code} = L_1.\text{code} \parallel \text{label} \parallel M \parallel S_1.\text{code} \\ L \rightarrow \epsilon \quad & L.\text{code} = "" \end{aligned}$$

5.5.4 解: (1)



(2)

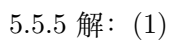


(3) 对文法消除左递归:

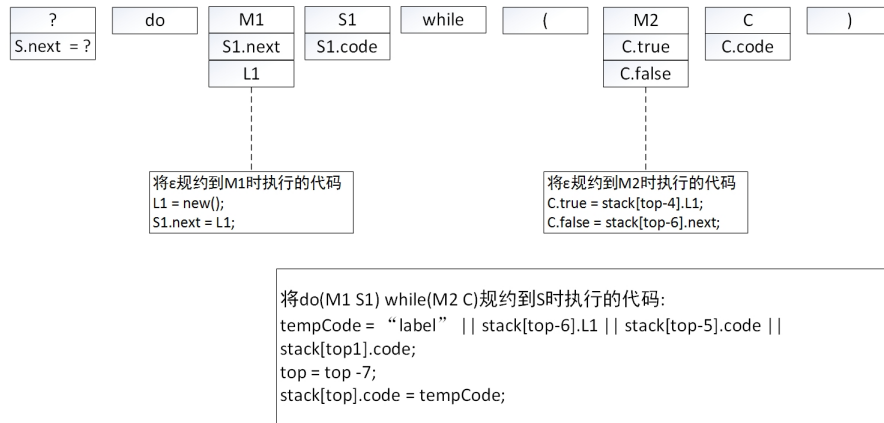
$$S \rightarrow' \{ 'L' \}'$$

$$L \rightarrow L'$$

$$L' \rightarrow SL' \mid \epsilon$$



(2)

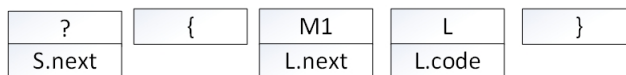


(3) 对文法消除左递归:

$$S \rightarrow' \{ 'L' \}'$$

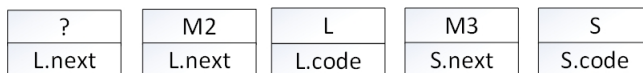
$$L \rightarrow L'$$

$$L' \rightarrow SL' \mid \epsilon$$



将ε规约到M1时执行的代码  
L.next = stack[top-2].next;

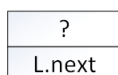
将(L)规约到S时执行的代码  
tempCode = stack[top-1].code;  
top = top - 3;  
stack[top].code = tempCode;



将ε规约到M2时执行的代码  
L = new();  
L.next = L;

将ε规约到M3时执行的代码  
S.next = stack[top-3].next;

将M2 L M3 S规约到L时执行的代码  
tempCode = stack[top-2].code ||  
stack[top].code;  
top = top - 3;  
stack[top].code = tempCode;



将ε规约到L时执行的代码  
tempCode = " ";  
top = top + 1;  
stack[top].code = tempCode;