

```
while A < C and B < D do
  if A = 1 then
    C := C + 1
  else
    while A <= D do
      A := A + 2
```

# 文法

1.  $S \rightarrow \text{if } B \text{ then } M1 \ S1 \ N \ \text{else } M2 \ S2$
2.  $N \rightarrow \varepsilon$
3.  $M \rightarrow \varepsilon$
4.  $S \rightarrow M1 \ B \ \text{do } M2 \ S1$
5.  $S \rightarrow A$
6.  $A \rightarrow \text{id} := E$
7.  $E \rightarrow E + E$
8.  $E \rightarrow \text{id/const}$
9.  $B \rightarrow \text{id/const rop id/const}$
10.  $B \rightarrow B \ \text{and } M \ B$

- ## 语法树

# 中间代码

地址编号	中间代码	生成该中间代码的产生式编号	回填地址位的产生式编号
100	(j<,A,C,102)	9	10
101	(j,-,-,0)	9	?
102	(j<,B,D,104)	9	4
103	(j,-,-,0)	9	?
104	(j=A,1,106)	9	1
105	(j,-,-,109)	9	1
106	(+,C,1,T1)	7	
107	(=,T1,-,C)	6	
108	(j,-,-,100)	2	4
109	(j<=,A,D,111)	9	4
110	(j,-,-,100)	9	4
111	(+,A,2,T2)	7	
112	(:=,T2,-,A)	6	
113	(j,-,-,109)	4	
114	(j,-,-,100)	4	