

编译原理第六章(三)

李鹏辉

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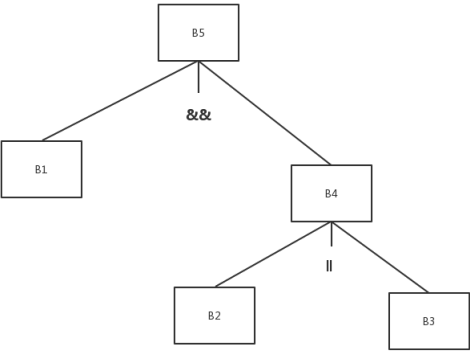
1.(6.6.1)在图6-36的语法制导定义中添加处理下列控制流构造的规则

- 1) 一个repeat语句:*repeat S while B*
- 2) 一个for循环语句:*for (S₁; B; S₂)S₃*

PRODUCTION	SEMANTIC RULES
$S \rightarrow repeat\ S\ while\ B$	$S = newlabel()$ $B.true = S$ $B.false = S.next$ $S.code = label(S) S.code B.code label(B.true) gen('goto' S) S.next$
$S \rightarrow for\ (S_1;\ B;\ S_2)S_3$	$S_3 = newlabel()$ $B = newlabel()$ $B.true = S_3$ $B.false = S.next$ $S_3.next = S_2$ $S_2.next = B$ $S.code = S_1.code B.code label(B.true) S_3.code S_2.code gen('goto' B) S.next$

2.(6.7.1)使用图6-43的翻译方案翻译下列表达式。给出每个子表达式的truelist和falselist。你可以假设第一条被生成的指令地址是100

- 1) $a == b \ \&\&\ (c == d \ ||\ e == f)$



```
100  if(a == b) goto -
101      goto -
102  if (c ==d) goto -
103      goto -
104  if(e == f) goto -
105      goto -
```

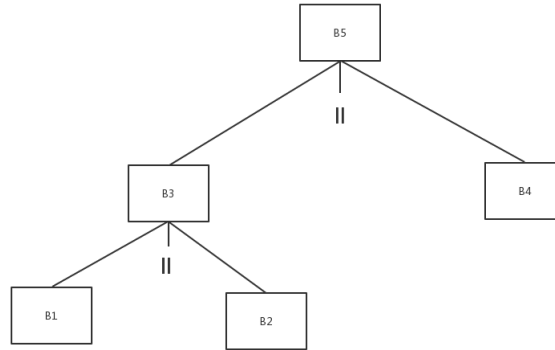
Block	T or F	
B_1	$B_1.truelist$	100
	$B_2.falselist$	101
B_2	$B_2.truelist$	102
	$B_2.falselist$	103
B_3	$B_3.truelist$	104
	$B_3.falselist$	105
B_4	$B_4.truelist$	102,104
	$B_4.falselist$	105
B_5	$B_5.truelist$	102,104
	$B_5.falselist$	101,105

```

100  if(a == b) goto 102
101      goto false
102  if (c ==d) goto true
103      goto 104
104  if(e == f) goto true
105      goto false

```

2) $(a == b \parallel c == d) \parallel e == f$



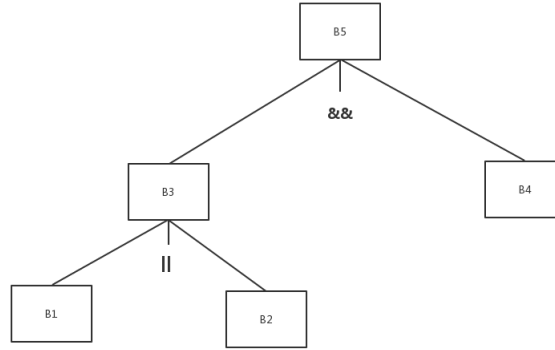
Block	T or F	
B_1	$B_1.truelist$	100
	$B_2.falselist$	101
B_2	$B_2.truelist$	102
	$B_2.falselist$	103
B_3	$B_3.truelist$	104
	$B_3.falselist$	105
B_4	$B_4.truelist$	102,104
	$B_4.falselist$	103
B_5	$B_5.truelist$	100, 102,104
	$B_5.falselist$	105

```

100  if(a == b) goto true
101      goto 102
102  if (c ==d) goto true
103      goto 104
104  if(e == f) goto true
105      goto false

```

3) $(a == b \ \&\& \ c == d) \ \&\& \ e == f$



Block	T or F	
B_1	$B_1.truelist$	100
	$B_2.falselist$	101
B_2	$B_2.truelist$	102
	$B_2.falselist$	103
B_3	$B_3.truelist$	104
	$B_3.falselist$	105
B_4	$B_4.truelist$	102
	$B_4.falselist$	101,103
B_5	$B_5.truelist$	104
	$B_5.falselist$	101,103,105

```

100  if(a == b) goto 102
101      goto false
102  if (c ==d) goto 104
103      goto false
104  if(e == f) goto true
105      goto false

```