罗致远 10195101499

输入空间划分 (Input Space partition)

划分	块1	块2	块3	块4
边1	>1	=1	=0	<0
边2	>1	=1	=0	<0
边3	>1	=1	=0	<0

ECC: {(2,2,2), (1,1,1), (0,0,0), (-1,-1,-1)}

PWC: (2,2,2), (2,1,1), (2,0,0) (2,-1,-1)

(1,2,2), (1,1,1), (1,0,0), (1,-1,-1)

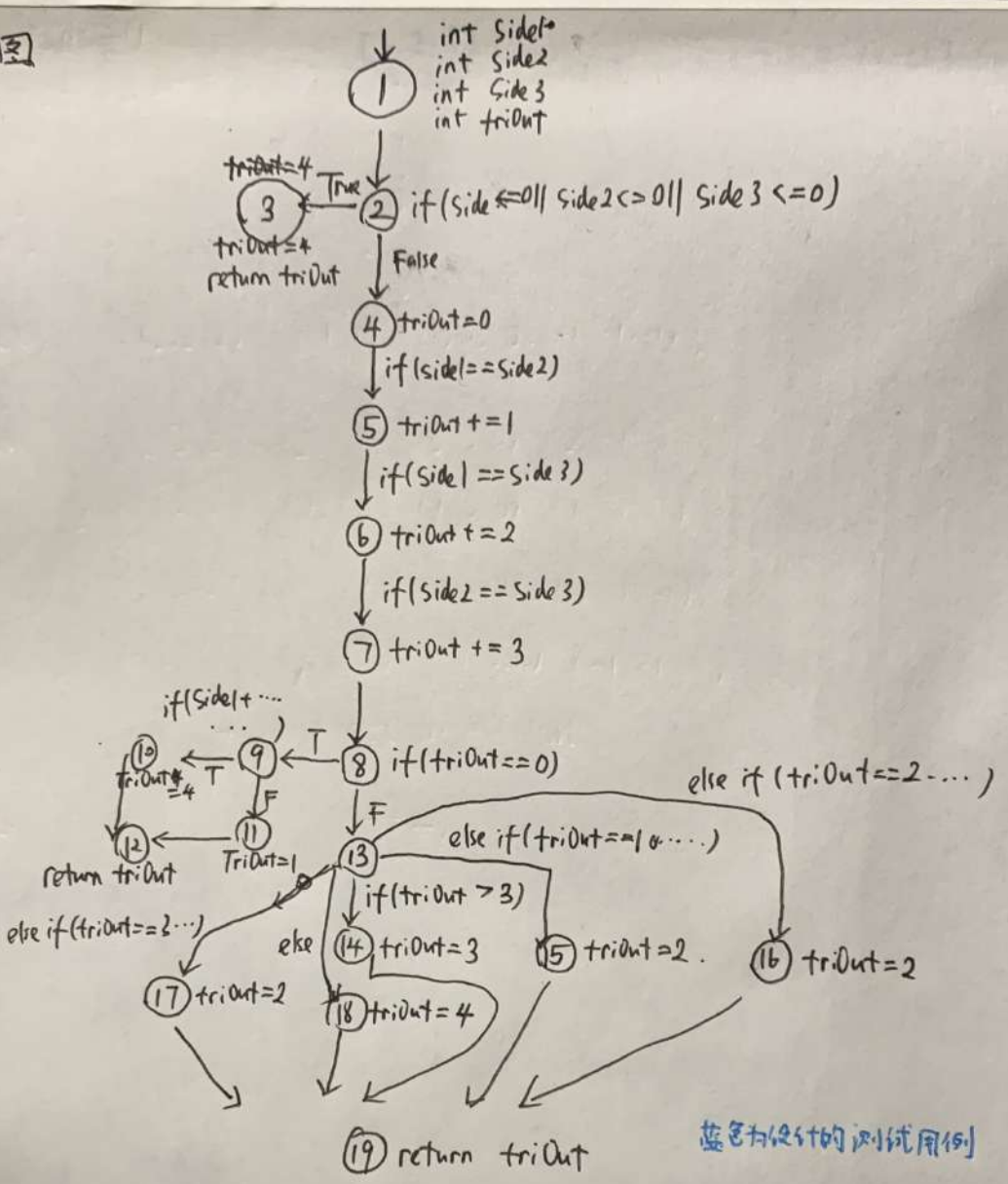
(0,2,2), (0,1,1), (0,0,0), (0,-1,-1)

(-1,2,2), (-1,1,1), (-1,0,0), (-1,-1,-1)

至少 $4^2=16$ 个测试可以满足 PWC.

图覆盖 (Graph Coverage) (见下页)

控制流图



蓝色标记的测试用例

① Node Coverage { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 }

Test Path: [1,2,3] [1,2,4,5,6,7,8,9,10,12] [1,2,4,5,6,7,8,9,11,12]

[1,2,4,5,6,7,8,13,14,19] [1,2,4,5,6,7,8,13,16,19]

[1,2,4,5,6,7,8,13,15,19]

[1,2,4,5,6,7,8,13,18,19]

[1,2,4,5,6,7,8,13,17,19]

② Edge Coverage { (1,2), (2,3), (2,4), (4,5), (5,6), (6,7), (7,8), (8,9) (9,10), (10,12) (9,11), (11,12), (8,13), (13,16), (13,14), (13,15), (13,17), (13,18) (14,19), (15,19), (16,19), (17,19), (18,19) }

Test Path: [1,2,3], [1,2,4,5,6,7,8,9,10,12] [1,2,4,5,6,7,8,9,11,12]

[1,2,4,5,6,7,8,13,14,19] [1,2,4,5,6,7,8,13,14,16,19]

[1,2,4,5,6,7,8,13,14,17,19], [1,2,4,5,6,7,8,13,14,18,19]

Prime Path Coverage:

[-1,-1,-1] [1,2,3], [1,2,4,5,6,7,8,9,10,12] [1,2,7]

[1,2,4,5,6,7,8,9,(1,12] [3,4,5]

[3,3,3] [1,2,4,5,6,7,8,13,14,19]

[1,2,4,5,6,7,8,13,15,19] [3,3,4]

[3,4,3] [1,2,4,5,6,7,8,13,16,19]

[1,2,4,5,6,7,8,13,17,19] [4,3,3]

[1,2,4,5,6,7,8,13,18,19] [3,3,8]

All-use Coverage

针对于 triOut = 4 时,

[-1,-1,-1] [1,2,3], [1,2,4,5,6,7,8,9,10] [1,2,7]

[1,2,4,5,6,7,8,13,18], [3,3,8]

Logic coverage (逻辑覆盖)   选择: P= ~~a∨(b∧c)~~ (a∨b)∧(c>d)

Predicate coverage 谓词覆盖.

Two tests: ~~a=5~~ [a=T, b=T, c=6, d=5]

[a=F, b=F, c=5, d=6]   (不能测试每个 clause).

Clause coverage. 子句覆盖

[a=T, b=T, c=6, d=5]

[a=F, b=F, c=5, d=6]

区别: 谓词覆盖不一定满足子句覆盖
子句覆盖不一定满足谓词覆盖

CACC: 相关有效子句覆盖:

使(a∨b)绝决定P, 则 (c>d) 必须取真

Tests: [a=T, b=T, c=6, d=5]

[a=F, b=F, c=6, d=5]