

Assignment 9

Rasika Mohod

rmohod@gmu.edu

G01044774

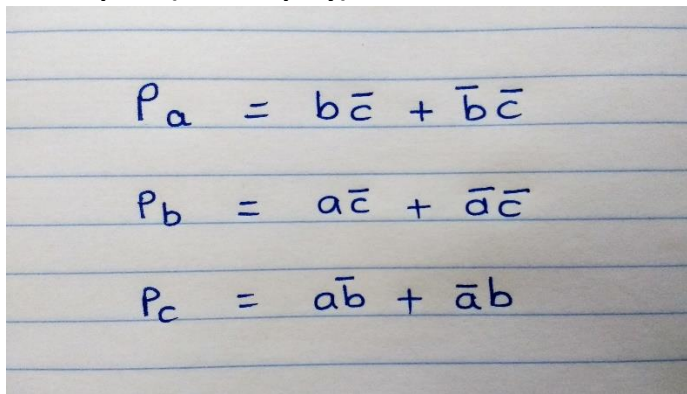
Introduction to Software Testing (Edition 2): Book by Jeff Offutt and Paul Amman
Exercises Section 8.1, Number 4.

$p : (a == b) \vee c$

a. List the clauses that go with predicate p .

Clauses are a , b , c

b. Compute (and simplify) the conditions under which each clause determines predicate p .


$$P_a = b\bar{c} + \bar{b}c$$
$$P_b = a\bar{c} + \bar{a}c$$
$$P_c = a\bar{b} + \bar{a}b$$

c. Write the complete truth table for each clause. Label your rows starting from

Row No.	a	b	c	P	P_a	P_b	P_c
1	T	T	T	T			
2	T	T		T	T	T	
3	T		T	T			T
4	T				T	T	T
5		T	T	T			T
6		T			T	T	T
7			T	T			
8				T	T	T	

d. List all pairs of rows from your table that satisfy General Active Clause Coverage (GACC) with respect to each clause.

GACC for a:

1. $P_a = T, a=T$: Rows 2, 4
2. $P_a = T, a=F$: Rows 6, 8

Cross product pairs of rows: (2,6), (2,8), (4,6), (4,8)

GACC for b:

1. $P_b = T, b=T$: Rows 2, 6
2. $P_b = T, b=F$: Rows 4, 8

Cross product pairs of rows: (2,4), (2,8), (6,4), (6,8)

GACC for c:

1. $P_c = T, c=T$: Rows 3, 5
2. $P_c = T, c=F$: Rows 4, 6

Cross product pairs of rows: (3,4), (3,6), (5,4), (5,6)

e. List all pairs of rows from your table that satisfy Correlated Active Clause Coverage (CACC) with respect to each clause.

CACC for a:

1. $P_a = T, a=T$
2. $P_a = T, a=F$
3. P should change

Pairs of rows: (2,6), (4,8)

CACC for b:

1. $P_b = T, b=T$
2. $P_b = T, b=F$
3. P should change

Pairs of rows: (2,4), (6,8)

CACC for c:

1. $P_c = T, c=T$
2. $P_c = T, c=F$
3. P should change

Pairs of rows: (3,4), (3,6), (5,4), (5,6)

f. List all pairs of rows from your table that satisfy Restricted Active Clause Coverage (RACC) with respect to each clause.

RACC for a:

1. $P_a = T, a=T$
2. $P_a = T, a=F$
3. b & c values should be same

Pairs of rows: (2,6), (4,8)

RACC for b:

1. $P_b = T, b=T$
2. $P_b = T, b=F$
3. a & c values should be same

Pairs of rows: (2,4), (6,8)

RACC for c:

1. $P_c = T, c=T$
2. $P_c = T, c=F$
3. a & b values should be same

Pairs of rows: (3,4), (5,6)

g. List all 4-tuples of rows from your table that satisfy General Inactive Clause Coverage (GICC) with respect to each clause. List any infeasible GICC test requirements.

GICC for a:

1. $P_a = F, a=T$: Rows 1, 3
2. $P_a = F, a=F$: Rows 5, 7

Cross product pairs of rows: (1,5), (1,7), (3,5), (3,7)

Infeasible TR: (1,5), (1,7), (3,5), (3,7)

GICC for b:

1. $P_b = F, b=T$: Rows 1, 5
2. $P_b = F, b=F$: Rows 3, 7

Cross product pairs of rows: (1,3), (1,7), (5,3), (5,7)

Infeasible TR: (1,3), (1,7), (5,3), (5,7)

GICC for c:

1. $P_c = F, c=T$: Rows 1, 7
2. $P_c = F, c=F$: Rows 2, 8

Cross product pairs of rows: (1,2), (1,8), (7,2), (7,8)

Infeasible TR: (1,2), (1,8), (7,2), (7,8)

h. List all 4-tuples of rows from your table that satisfy Restricted Inactive Clause Coverage (RICC) with respect to each clause. List any infeasible RICC test requirements.

RICC for a:

1. $P_a = F, a=T$
2. $P_a = F, a=F$
3. b & c values should be same

Pairs of rows: (1,5), (3,7)

Infeasible TR: (1,5), (3,7)

RICC for b:

1. $P_b = F, b=T$
2. $P_b = F, b=F$
3. a & c values should be same

Pairs of rows: (1,3), (5,7)

Infeasible TR: (1,3), (5,7)

RICC for c:

1. $P_c = F, c=T$
2. $P_c = F, c=F$
3. a & b values should be same

Pairs of rows: (1,2), (7,8)

Infeasible TR: (1,2), (7,8)