

Concolic Testing Exercise (Solution)

Step	Prefix	Prefix feasibility	Input	Path condition	Test result
0	[]	sat	a = 3, b = 3	[asm(0 < A and 0 < B), brn(A == B)]	pass
1	[asm(0 < A and 0 < B), brn(not A == B)]	sat	a = 1, b = 2	[asm(0 < A and 0 < B), brn(not A == B), brn(not A % B == 0), brn(B % A == 0)]	pass
2	[asm(0 < A and 0 < B), brn(not A == B), brn(not A % B == 0), brn(not B % A == 0)]	sat	a = 2, b = 3	[asm(0 < A and 0 < B), brn(not A == B), brn(not A % B == 0), brn(not B % A == 0), brn(1 < B), asm(A == 2), asm(B == 3), brn(2 < B), asm(A == 2), asm(B == 3), brn(not 3 < B)]	pass
3	[asm(0 < A and 0 < B), brn(not A == B), brn(not A % B == 0), brn(not B % A == 0), brn(1 < B), asm(A == 2), asm(B == 3), brn(2 < B), asm(A == 2), asm(B == 3), brn(3 < B)]	unsat			
4	[asm(0 < A and 0 < B), brn(not A == B), brn(not A % B == 0), brn(not B % A == 0), brn(1 < B), asm(A == 2), asm(B == 3), brn(not 2 < B)]	unsat			

Step	Prefix	Prefix feasibility	Input	Path condition	Test result
5	$[\text{asm}(0 < A \text{ and } 0 < B),$ $\text{brn}(\text{not } A == B),$ $\text{brn}(\text{not } A \% B == 0),$ $\text{brn}(\text{not } B \% A == 0),$ $\text{brn}(\text{not } 1 < B)]$	unsat			
6	$[\text{asm}(0 < A \text{ and } 0 < B),$ $\text{brn}(\text{not } A == B),$ $\text{brn}(A \% B == 0)]$	sat	$a = 2,$ $b = 1$	$[\text{asm}(0 < A \text{ and } 0 < B),$ $\text{brn}(\text{not } A == B),$ $\text{brn}(A \% B == 0)]$	pass

TABLE 1: Concolic testing solution.