SE 4367 (Software Testing)
Homework #7, BRO Predicate-Based Test Generation

Generate a BRO-adequate test set T_{BRO} for

p_r: $(a<0) \vee (b=1) \wedge (c>2) \vee (D \wedge !E)$

where a, b, c are integer variables and D, E are Boolean variables.

Show all the steps in generating T_{BRO}.

Draw the abstract syntax tree (AST) and label the nodes N_1 to N_m.

Explicitly list the true and false constraint sets for <u>each</u> node in the AST.

Remember to generate a test set T_{BRO} corresponding to the root node in the AST.

Grading Rubric

Setting up the AST wrong, -10 points

- common problem: doing OR before AND in this tree
- left-to-right precedence is preferred even if an alternative is mathematically correct

Using the wrong BRO/BOR formulas for a node, -5 points

- common problem: getting ONTO product or $\{t_x\}$ wrong

Not explicitly listing the true and false constraint sets for a node, -5 points

- for N_1-N_5, 5 points total

Getting the wrong (true or false) constraint set for a node, -5 points each

Not generating the T_{BRO} test set, -5 points

- don't care what specific values are used for a,b,c

There are legitimate alternatives for ONTO product and for $\{t_x\}$ or $\{f_x\}$ in this problem.

- Using one of the alternatives is legitimate. I have suggested conventions that make it easier to grade, but if you went a different (legal) way, that's allowed.

Conventions

- order t,f or <, =, > in initial sets
- match corresponding ONTO terms until reaching the end of the shorter set; then continue matching with the last item in the shorter set
- pick the first item in the set for a $\{t_x\}$ or $\{f_x\}$

Missing the class, assignment, or your name at the beginning of your submission or in the filename, -5 points each