COUNTER-EXAMPLE   GENERATOR
William Bricken
October 1985

Erase all atoms in the outermost space of representation.   Erase all
duplicates of these atoms throughout the expression.

Erase all bounded atoms -- eg: (a) -- and their boundaries in the outermost
space. Substitute ( ) for all duplicates of the bounded atoms throughout the
expression.

CLEAN -- ie, ABSORB and CLARIFY) the remaining expression.

Recur to Step 1 if more atoms or bounded atoms occur in the outermost space
as a result of simplification.

If ( ) remains, conclude that a tautology is unavoidable.   If *nothing*
remains, a counterexample has been identified.

If bounded expressions remain, for example

        (a b) (a (b)) (b (a)) ((a)(b))

which represents

        a = b OR a =/= b

then attempt to make every expression disappear.   Select one subexpression.

Step 1. If atoms exist at the top level of the subexpression, choose one and
substitute ( ) for it throughout the entire expression.   If the entire
expression vanishes, a counterexample has been found.   If the entire
expression reduces to ( ), then the selected atom cannot generate a
counterexample.   Erase it from the entire expression. Recur to Step 1 until a
counterexample is found or until there are no more atoms at the top level of
the subexpression.

Step 2. If bounded atoms exist at the top level of the subexpression, choose
one and erase it throughout the expression.   If the entire expression
vanishes, a counterexample has been found.   If the entire expression reduces
to ( ), then substitute ( ) for the bounded atom throughout the expression.
Recur to Step 1.

Step 3. Otherwise recur to Step 1 using the subexpression as the target
expression.