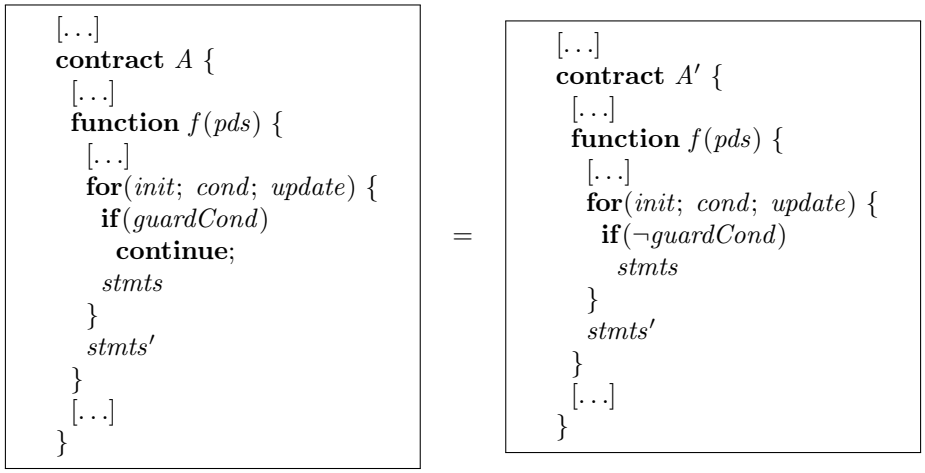
Rule 0.30 ⟨*Redundant Control Flow Removal (Continue)*⟩



where

guardCond is a boolean condition that guards the execution of *stmts*;

stmts represents the statements in the loop body that should be conditionally executed;

init, *cond*, and *update* are the loop initialization, condition, and update expressions;

stmts′ represents statements following the loop;

$\neg$*guardCond* denotes the logical negation of *guardCond*.

provided

The **continue** statement is immediately executed when *guardCond* is true;

No statements exist between the **continue** and the end of the loop iteration;

guardCond has no side effects;

stmts does not modify variables used in *guardCond* in a way that would affect the loop's semantics.

Invariant:

Let s_i and s_i' be the initial state of A and A', respectively.

Let s_f and s_f' be the state reached by A and A', respectively, after $A.f()$ and $A'.f()$ are executed from s_i and s_i', respectively.

Then, the coupling invariant is

$$\forall\, s_i, s_i' \;.\; (s_i = s_i') \rightarrow (s_f = s_f')$$