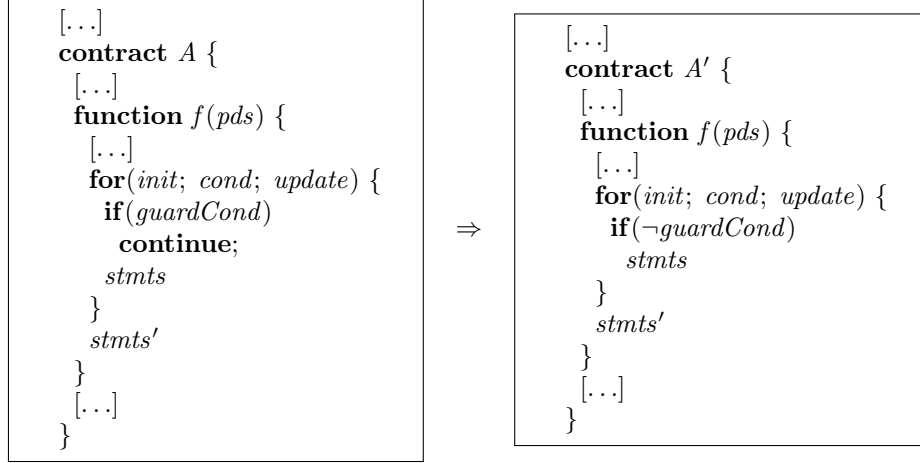

Rule 0.30 *⟨Redundant Control Flow Removal (Continue)⟩*



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

$$\forall s_i, s'_i . (s_i = s'_i) \rightarrow (s_f = s'_f)$$
