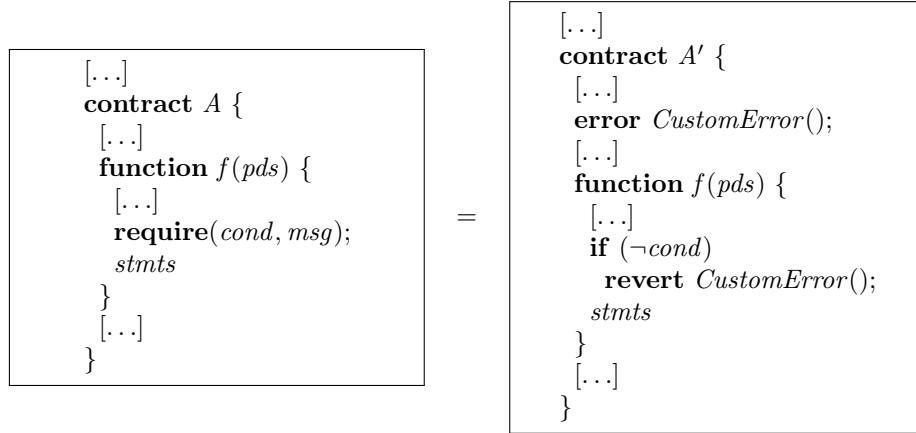

Rule 0.1 *(Replace Require with Custom Error)*

**where**

cond is a boolean condition being validated;

msg is the revert reason string used in the **require** statement;

CustomError is a custom error type defined in contract *A'*;

stmts represents the sequence of statements following the validation.

provided

The custom error *CustomError* is declared at the contract level in *A'*;

The condition *cond* is side-effect free (does not modify state);

The revert behavior is semantically equivalent in both versions.

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

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