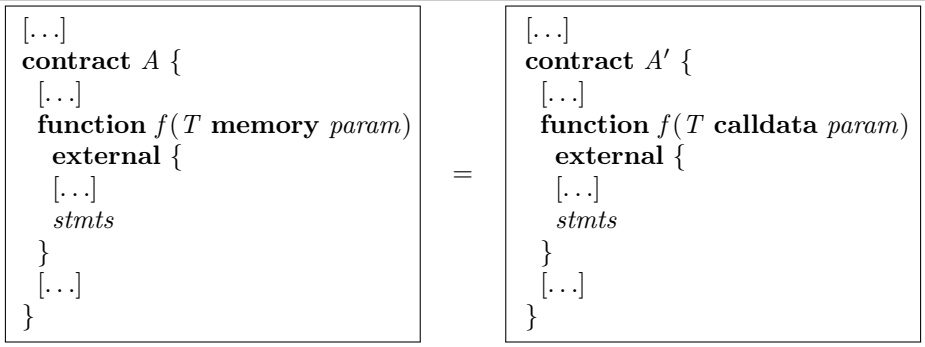
Rule 0.10 ⟨*Use Calldata Instead of Memory for Function Parameters*⟩



where

param is a function parameter with data location **memory** in contract A;

T is a reference type (e.g., array, struct, string, or bytes);

f is an **external** function;

stmts represents the sequence of statements in the function body.

provided

The function f has **external** visibility;

The parameter *param* is not modified within the function body (read-only access);

No memory copy of *param* is required within *stmts*;

T is a reference type that supports calldata location;

All accesses to *param* in *stmts* are compatible with calldata's read-only nature.

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

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