
Rule 0.13 *⟨Use Constant Variables for Unchanging Values⟩*

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| <pre>[...] contract A { T var = value; [...] function f(pds) view { [...] ... var ... [...] } [...] }</pre> | = | <pre>[...] contract A' { T constant var = value; [...] function f(pds) pure { [...] ... var ... [...] } [...] }</pre> |
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where

var is a state variable of type *T* in contract *A*;

value is a compile-time constant expression that initializes *var*;

f is a function that reads *var*;

pds are the parameter declarations of function *f*.

provided

The variable *var* is never modified after initialization;

The value *value* is known at compile time and does not depend on runtime state;

All functions reading *var* can be changed from **view** to **pure** if they only access constant variables;

The type *T* supports constant declaration in Solidity;

No write operations to *var* exist anywhere in the contract.

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

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