PO/VC Rule of Invariant Preservation

constants: d

variables: n

ML_out
  begin
    $n := n + 1$
  end

axioms:
  axm0_1 : $d \in \mathbb{N}$

invariants:
  inv0_1 : $n \in \mathbb{N}$
  inv0_2 : $n \leq d$

ML_in
  begin
    $n := n - 1$
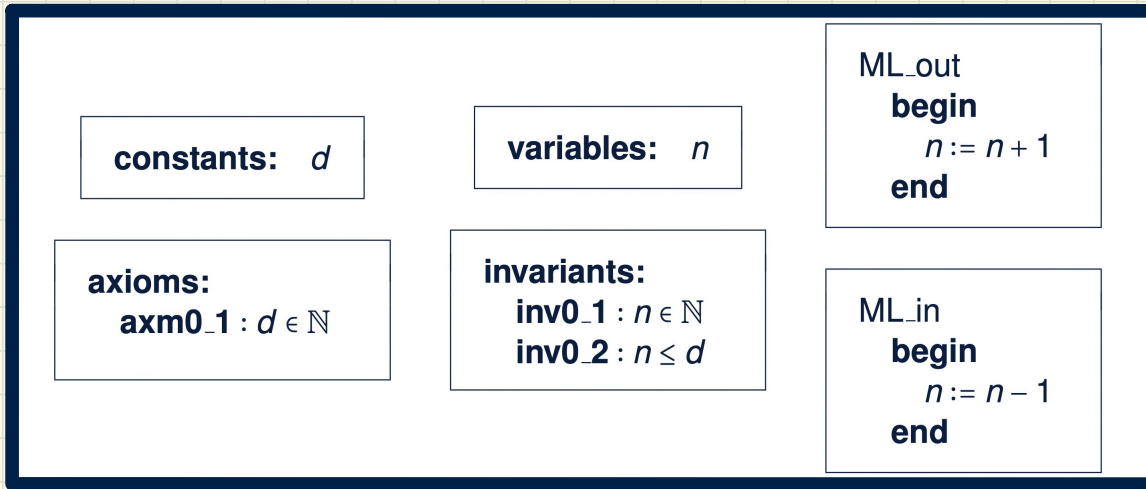 **end**

Axioms
Invariants Satisfied at *Pre-State*
Guards of the Event   INV
$\vdash$
Invariants Satisfied at *Post-State*

PO/VC Rule of Invariant Preservation: Components

constants: d

variables: n

axioms:
   axm0_1 $: d \in \mathbb{N}$

invariants:
   inv0_1 $: n \in \mathbb{N}$
   inv0_2 $: n \leq d$

ML_out
  begin
    $n := n + 1$
  end

ML_in
  begin
    $n := n - 1$
  end

c: list of constants

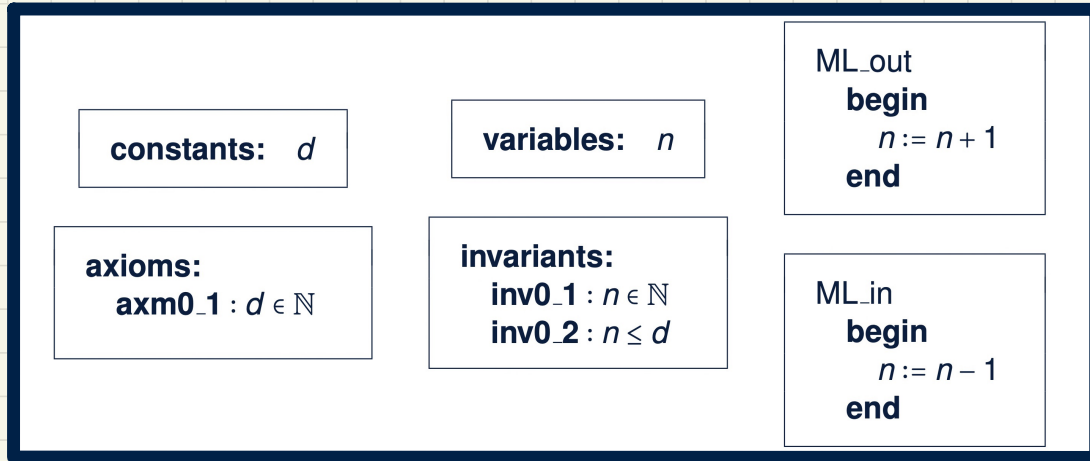A(c): list of axioms

v and v': variables in pre- and post-state

I(c, v): list of invariants

G(c, v): guards of an event's

E(c, v): effect of an event's actions

v' = E(c, v): BAP of an event's actions

PO/VC Rule of Invariant Preservation: Sequents

constants: d

variables: n

axioms:
    axm0_1 : $d \in \mathbb{N}$

invariants:
    inv0_1 : $n \in \mathbb{N}$
    inv0_2 : $n \leq d$

ML_out
    begin
        $n := n + 1$
    end

ML_in
    begin
        $n := n - 1$
    end

$$A(c)$$
$$I(c, v)$$
$$G(c, v)$$
$$\vdash$$
$$I_i(c, E(c, v))$$

Q. How many PO/VC rules for model m0?