MACHINE m0

Describes a road intersections
Conventions:
o variables modelling the environment have names all
in CAPITAL
o variables describing the state of the controller are
all LOWER CASES

VARIABLES

EW
Number of cars crossing the intersection in the
east-west direction

NS Number of cars crossing in the north-south direction

INVARIANTS

inv1: $EW \in \mathbb{N}$

inv2: $NS \in \mathbb{N}$

inv3: $EW = 0 \lor NS = 0$
YOUR INVARIANT HERE:
we want to prevent cars from colliding
in the intersection

EVENTS

Initialisation

Initially, the intersection
is empty

begin

act1: $EW := 0$

act2: $NS := 0$

end

Event ENTER_NORTH ⟨ordinary⟩ $\widehat{=}$

Environment phenomenon.
You may have to edit this

when

grd1: $EW = 0$

then

act1: $NS := NS + 1$

end

Event EXIT_SOUTH ⟨ordinary⟩ $\widehat{=}$

Environment phenomenon.
You may have to edit this

when

grd1: $NS > 0$

then

act1: $NS := NS - 1$

end

Event ENTER_EAST ⟨ordinary⟩ $\widehat{=}$

Environment phenomenon.
You may have to edit this

when

grd1: $NS = 0$

then

act1: $EW := EW + 1$

end

Event EXIT_WEST ⟨ordinary⟩ $\widehat{=}$

Environment phenomenon.
You may have to edit this

when

grd1: $EW > 0$

then

act1: $EW := EW - 1$

end

END