An Event-B Specification of
Bridge

This project tests extending events.

VARIABLES   1.1

    count   Number of cars on bridge

INVARIANTS

    inv1: $count \in \mathbb{N}$
    inv2: $count \geq 0$
    inv3: $count \leq 10$

EVENT INITIALISATION
THEN

    init1: $count := 0$

END

EVENT enter   1.2
ANY

    nr

WHERE

    grd1: $nr \in \mathbb{N}$
    grd2: $count + nr \leq 10$

THEN

    act1: $count := count + nr$

END

EVENT leave   1.3
ANY

    nr

WHERE

    grd1: $nr \in \mathbb{N}$
    grd2: $count - nr \geq 0$

THEN

    act1: $count := count - nr$

END

REFINEMENT WithDrawBridge   2

REFINES Bridge

VARIABLES   2.1

   draw_bridge_open   If true, then the bridge is open and cars cannot enter the bridge.

INVARIANTS

   inv1: $draw\_bridge\_open \in \text{BOOL}$

EVENT INITIALISATION
EXTENDS INITIALISATION
THEN

   init1_1: $draw\_bridge\_open := \text{TRUE}$

END

EVENT setBridge   2.2
ANY

   state

WHERE

   grd1_1: $state \in \text{BOOL}$

THEN

   act1_1: $draw\_bridge\_open := state$

END

EVENT enter   2.3
EXTENDS enter
WHERE

   grd1_1: $draw\_bridge\_open = \text{FALSE}$

END

EVENT leave   2.4
EXTENDS leave
WHERE

   grd1_1: $draw\_bridge\_open = \text{FALSE}$

END