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VERSIÓN 1 : skel_uno.py

(INV : access = 1)

```
Monitor (NCARS) :
    access : int
    access = 1   # no hay coches en el túnel

Car i :
    car created
    car wants to enter
    wants_enter ( )
    car enters the tunnel
    car leaving the tunnel
    leaves_tunnel ( )
    car out of the tunnel

wants_enter ( ) :
    §INV§
    free_access.wait for ( access == 1)
    access = 0

leaves_tunnel ( ) :
    §INV§
    access = 1
    free_access . signal ( )
```

VERSIÓN 2 skel_multiple.py

(INV : ncar_n = 0 ∨ ncar_s = 0)

```
Monitor (NCARS) :
    access, ncar_n , ncar_s : int
    access = 1
    ncar_n = 0
    ncar_s = 0
    d = NORTH

Car i :
    car created
    car wants to enter
    wants_enter ( direction)
    car enters the tunnel
    car leaving the tunnel
    leaves_tunnel (direction)
    car out of the tunnel

wants_enter ( direction) :
    §INV§
    set_current_direction (direction)
    free_access . wait for ( access == 1 ∨
      ncar_s > 0  ∨  ncar_n > 0 )
    if  d == NORTH
      ncar_n += 1
    else
      ncar_s += 1
    access = 0

leaves_tunnel (direction) :
    if  d == NORTH
      ncar_n -= 1
    else
      ncar_s -= 1
    if  ncar_n == 0 ∧ ncar_s == 0
      access = 1
    free_access . signal ( )
```

VERSION 3 — sket-tunes.py

(INV : (ncar_n = 0 ∨ ncar_s = 0) ∧ prohibition = 0)

```
Monitor (NCARS, maxWait):
    access, ncar_n, ncar_s, prohibition, t0 : int
    access = 1
    ncar_n = 0
    ncar_s = 0
    prohibition = 0
    t0 = 0

Car i:
    car created
    car wants to enter
    wants_enter(direction)
    car enters the tunnel
    car leaving the tunnel
    leaves_tunnel(direction)
    car out of the tunnel

wants_enter(direction)
    {INV}
    set_current_direction(direction)
    free_access.waitfor(is_free_access)
    if d == NORTH
        ncar_n += 1
    else
        ncar_s += 1
    access = 0

leaves_tunnel(direction)
    {INV}
    if d == NORTH
        ncar_n -= 1
    else
        ncar_s -= 1
    if ncar_n == 0 ∧ ncar_s == 0
        access = 1
    free_access.signal()

is_free_access
    t1 = time.time()
    if t1 - t0 > maxWait
        prohibition = 0
        if ncar_n + ncar_s == 0
            prohibition = 1
    return (access == 1 ∨ ncar_n == 0 ∨
        ncar_s == 0) ∧ prohibition == 0
```