

CAR[G]+

feature -- queries

model: G

year: INTEGER

odometer: INTEGER

feature -- { NONE }

make (a_model: G; a_year: INTEGER; a_miles: **like** odometer)

-- Initialize a new car with `a_model`, `a_year`, and an odometer read `a_miles`.

require

consistent_year: $a_year \geq 1900$

positive_miles: $a_miles \geq 0$

ensure

proper_initialization:

$model \sim a_model \wedge year = a_year \wedge odometer = a_miles$

feature -- commands

update_odometer (a_mileage: INTEGER)

-- Increase the odometer read by `a_mileage`.

require

positive_increase: $a_mileage > 0$

ensure

correct_update: $odometer = \text{old } odometer + a_mileage$

invariant

valid_car_year: $year \geq 1900$

valid_mileage: $odometer \geq 0$



ELECTRIC_CAR[G]+

feature -- queries

battery: INTEGER

feature -- { NONE }

make (a_model: G; a_year: INTEGER; a_miles: **like** odometer)

-- Initialize a new car with `a_model`, `a_year`, and an odometer read `a_miles`.

ensure

battery_set: $battery = 26$

feature -- commands

upgrade_battery (a_new_battery: **like** battery)

-- Upgrade kilowatt hours.

require

$a_new_battery > battery + 10$

ensure

$battery = a_new_battery$

invariant

valid_battery: $battery \geq 26$