LAB 1 Traffic Light
Group 12

Machine:

```
MACHINE
    lightChange     ›
SEES
    Context1
VARIABLES
    light1    ›
    light2    ›
INVARIANTS
    inv1:   light1 ∈ Colors not theorem ›
    inv2:   light2 ∈ Colors not theorem ›
    inv3:   ¬(light1 = green ∧ light2 = green)  not theorem ›
EVENTS
    INITIALISATION:     not extended ordinary ›
    THEN
        act1:   light1 ≔ red ›
        act2:   light2 ≔ red ›
    END

    redToyellow1:   not extended ordinary ›
    WHERE
        grd1:   light1=red not theorem ›
    THEN
        act1:   light1≔yellow ›
    END

    redToyellow2:   not extended ordinary ›
    WHERE
        grd1:   light2=red not theorem ›
    THEN
        act1:   light2≔yellow ›
    END

    yellowTogreen1:     not extended ordinary ›
    WHERE
        grd1:   light1=yellow not theorem ›
        grd2:   light2≠green not theorem ›
    THEN
        act1:   light1≔green ›
    END

    yellowTogreen2:     not extended ordinary ›
    WHERE
        grd1:   light2=yellow not theorem ›
        grd2:   light1≠green not theorem ›
    THEN
        act1:   light2≔green ›
    END

    greenTored1:    not extended ordinary ›
    WHERE
        grd1:   light1=green not theorem ›
    THEN
        act1:   light1≔red ›
    END

    greenTored2:    not extended ordinary ›
    WHERE
        grd1:   light2=green not theorem ›
    THEN
```

```
    greenTored2:    not extended ordinary ›
    WHERE
        grd1:   light2=green not theorem ›
    THEN
        act1:   light2=red ›
    END

END
```

Context:

```
CONTEXT
    Context1    ›
SETS
    Colors    ›
CONSTANTS
    red    ›
    green    ›
    yellow    ›
AXIOMS
    axm1:   red ∈ Colors not theorem ›
    axm2:   green ∈ Colors not theorem ›
    axm3:   yellow ∈ Colors not theorem ›
    axm4:   partition(Colors,{red},{green},{yellow}) not theorem ›
END
```

Proof Obligations: