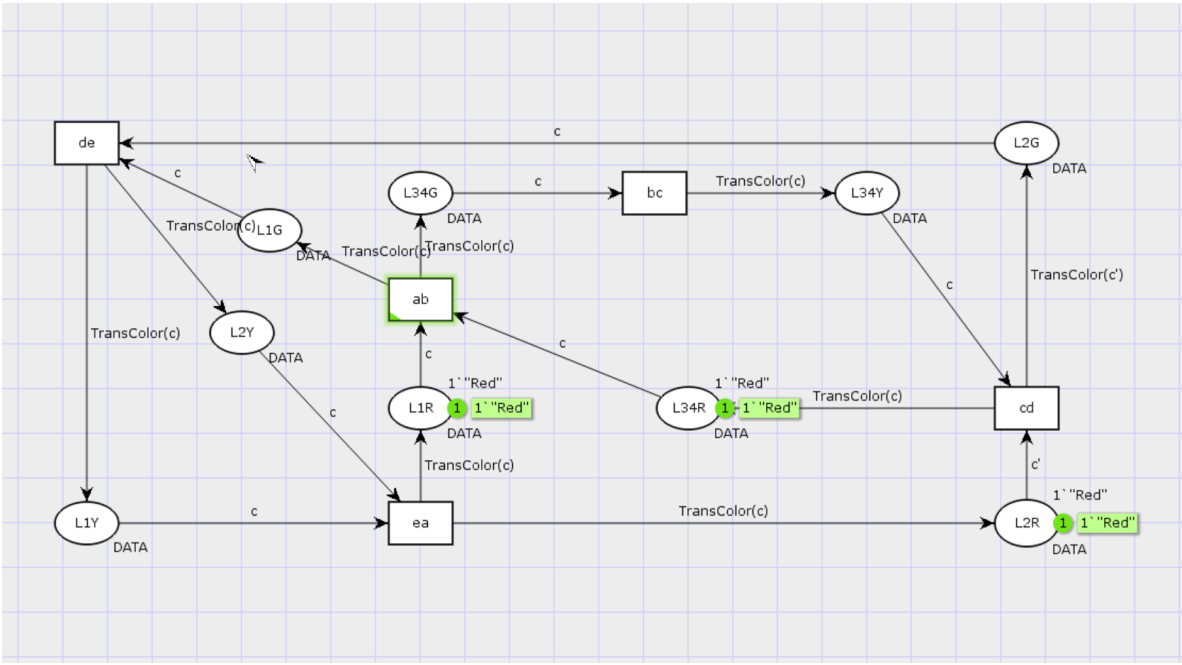
TrafficLight

Petri Net Graph



Mathematic definition

$C = (P, T, I, O)$

$P = \{L1R, L1G, L1Y, L2R, L2G, L2Y, L34R, L34G, L34Y\}$

$T = \{ab, bc, cd, de, ea\}$

$I(ab) = \{L1R, L34R\}\ O(ab) = \{L1G, L34G\}$

$I(bc) = \{L34G\}\ O(bc) = \{L34Y\}$

$I(cd) = \{L2R, L34Y\}\ O(cd) = \{L2G, L34R\}$

$I(de) = \{L1G, L2G\}\ O(de) = \{L1Y, L2Y\}$

$I(ea) = \{L1Y, L2Y\}$ $O(ea)=\{L1R,L2R\}$

The initial marking is: $\mu = (1, 0, 0, 1, 0, 0, 1, 0, 0)$

The definition of all colsets

```
colset DATA = string;
var c,c': DATA;
fun TransColor(c:DATA) = (case c of
                          "Red" => 1`"Green" |
                          "Green" => 1`"Yellow" |
                          "Yellow" => 1`"Red");
```

State space analysis

```
Statistics
```

```
------------------------------------------------------------------------

State Space
Nodes:  5
Arcs:   5
Secs:   0
Status: Full

Scc Graph
Nodes:  1
Arcs:   0
Secs:   0


Boundedness Properties
------------------------------------------------------------------------

Best Integer Bounds
Upper      Lower
TrafficLight'L1G 1      1          0
TrafficLight'L1R 1      1          0
TrafficLight'L1Y 1      1          0
TrafficLight'L2G 1      1          0
TrafficLight'L2R 1      1          0
TrafficLight'L2Y 1      1          0
TrafficLight'L34G 1     1          0
TrafficLight'L34R 1     1          0
TrafficLight'L34Y 1     1          0

Best Upper Multi-set Bounds
TrafficLight'L1G 1  1`"Green"
TrafficLight'L1R 1  1`"Red"
TrafficLight'L1Y 1  1`"Yellow"
TrafficLight'L2G 1  1`"Green"
TrafficLight'L2R 1  1`"Red"
TrafficLight'L2Y 1  1`"Yellow"
TrafficLight'L34G 1 1`"Green"
TrafficLight'L34R 1 1`"Red"
TrafficLight'L34Y 1 1`"Yellow"

Best Lower Multi-set Bounds
TrafficLight'L1G 1  empty
TrafficLight'L1R 1  empty
TrafficLight'L1Y 1  empty
TrafficLight'L2G 1  empty
TrafficLight'L2R 1  empty
TrafficLight'L2Y 1  empty
TrafficLight'L34G 1 empty
TrafficLight'L34R 1 empty
TrafficLight'L34Y 1 empty


Home Properties
------------------------------------------------------------------------

Home Markings
All
```

```
Liveness Properties
------------------------------------------------------------------------

Dead Markings
None

Dead Transition Instances
None

Live Transition Instances
All


Fairness Properties
------------------------------------------------------------------------

Impartial Transition Instances
TrafficLight'ab 1
TrafficLight'bc 1
TrafficLight'cd 1
TrafficLight'de 1
TrafficLight'ea 1

Fair Transition Instances
None

Just Transition Instances
None

Transition Instances with No Fairness
None
```