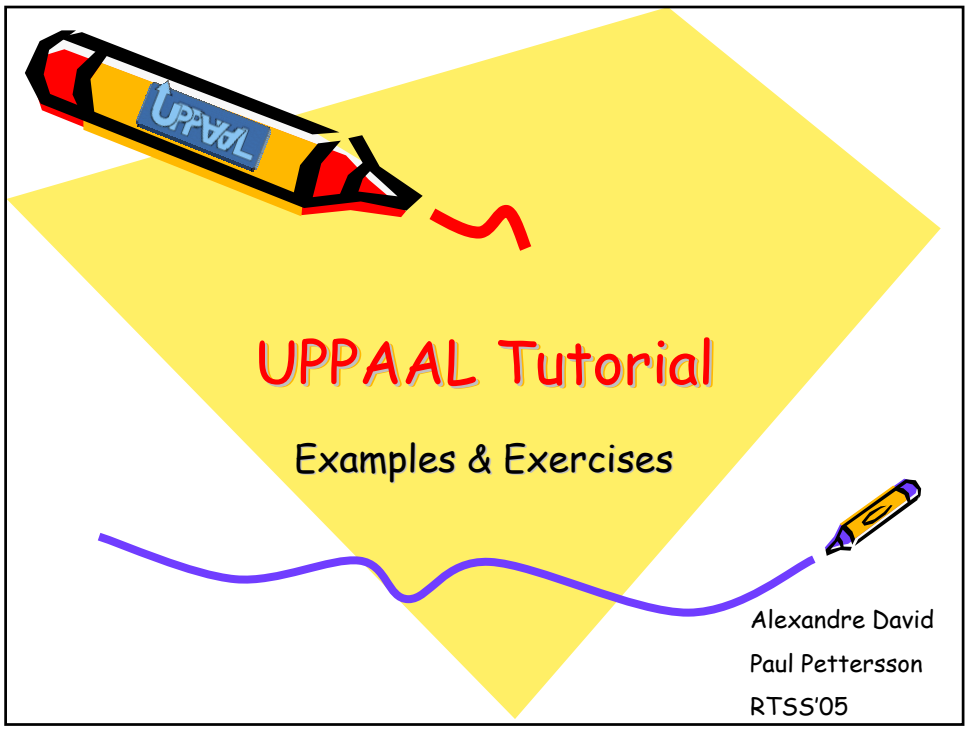
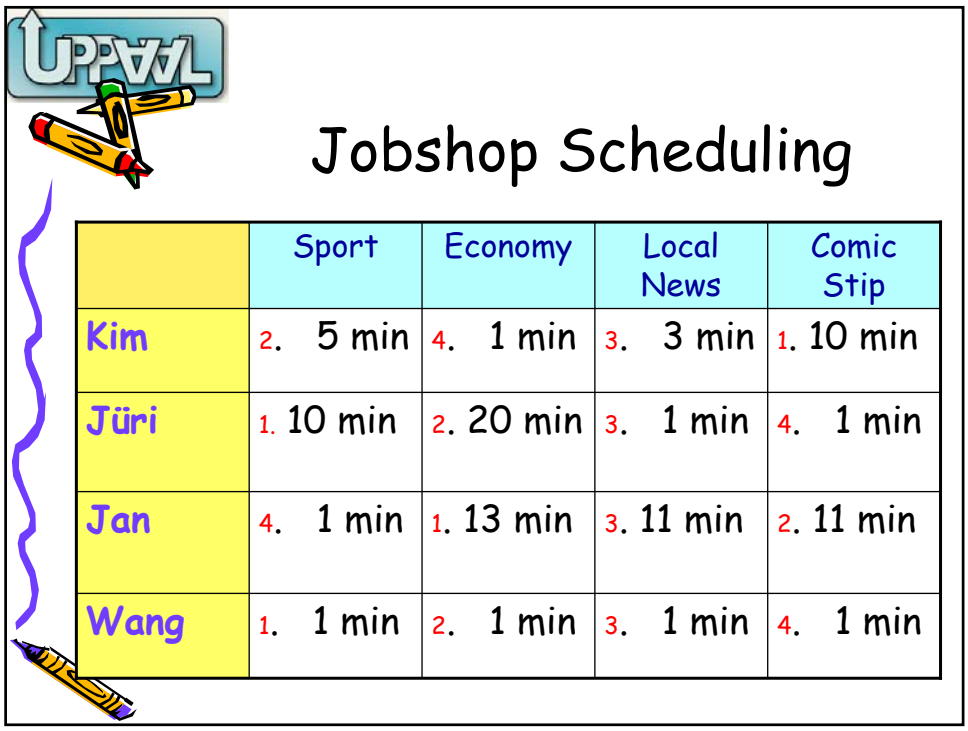


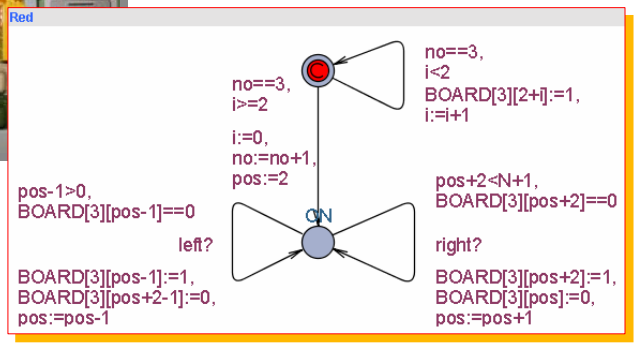


	Sport	Economy	Local News	Comic Strip
Kim	2. 5 min	4. 1 min	3. 3 min	1. 10 min
Jüri	1. 10 min	2. 20 min	3. 1 min	4. 1 min
Jan	4. 1 min	1. 13 min	3. 11 min	2. 11 min
Wang	1. 1 min	2. 1 min	3. 1 min	4. 1 min

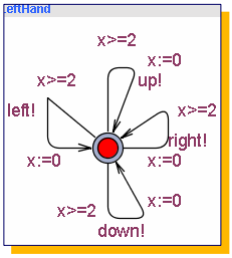
Rush Hour

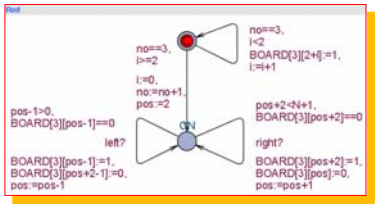
Objective:
Get your car out.

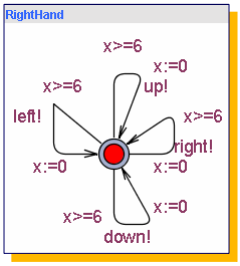
Rush Hour - Car



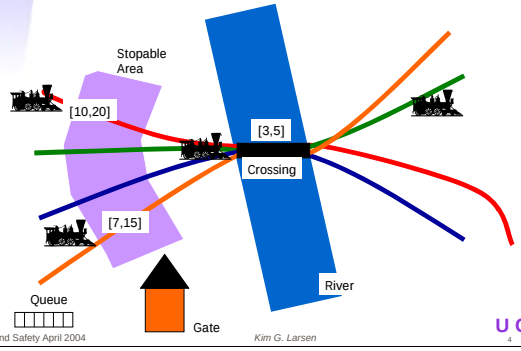
Rush Hour - Hands

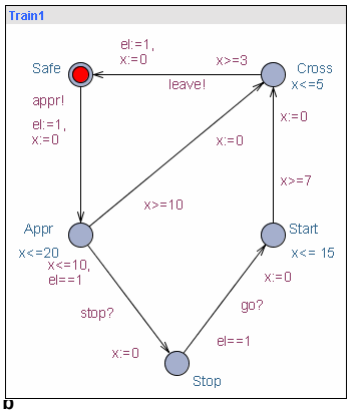






Train Crossing

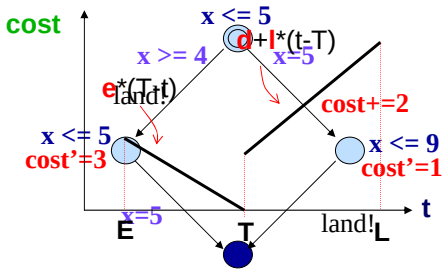





```
A[] Train1.Cross+Train2.Cross+Train3.Cross+Train4.Cross<= 1
Train1.Appr leadsto Train1.Cross
```

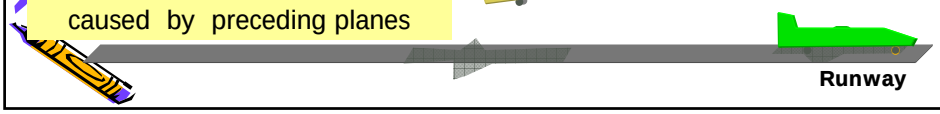
CORA

Example: Aircraft Landing



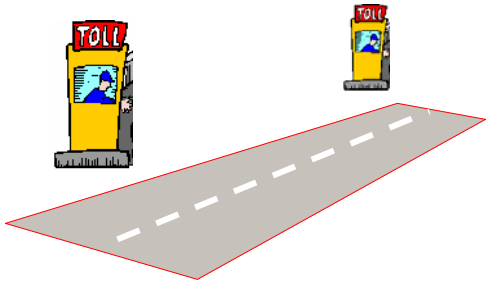
E earliest landing time
T target time
L latest time
e cost rate for being early
l cost rate for being late
d fixed cost for being late

Planes have to keep separation distance to avoid turbulences caused by preceding planes



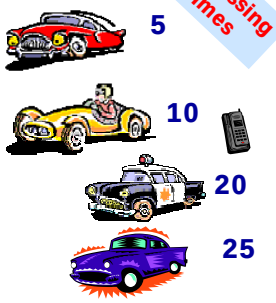
Real-time Scheduling

- Only 1 "BroBizz"
- Cheat is possible
  (drive close to car with "Bizz")



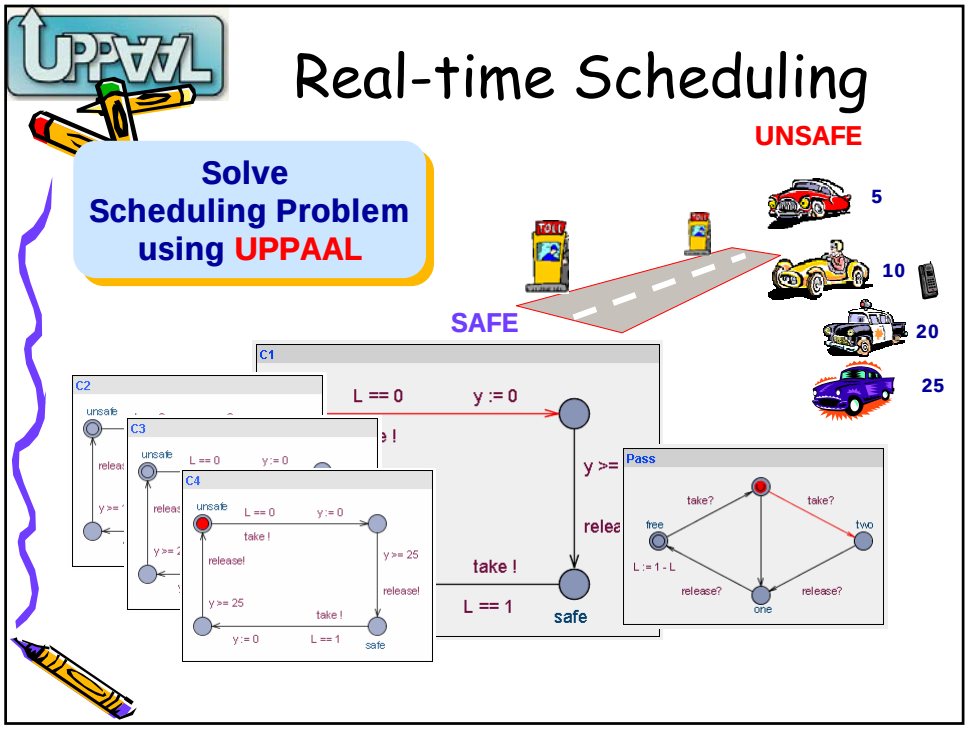
UNSAFE

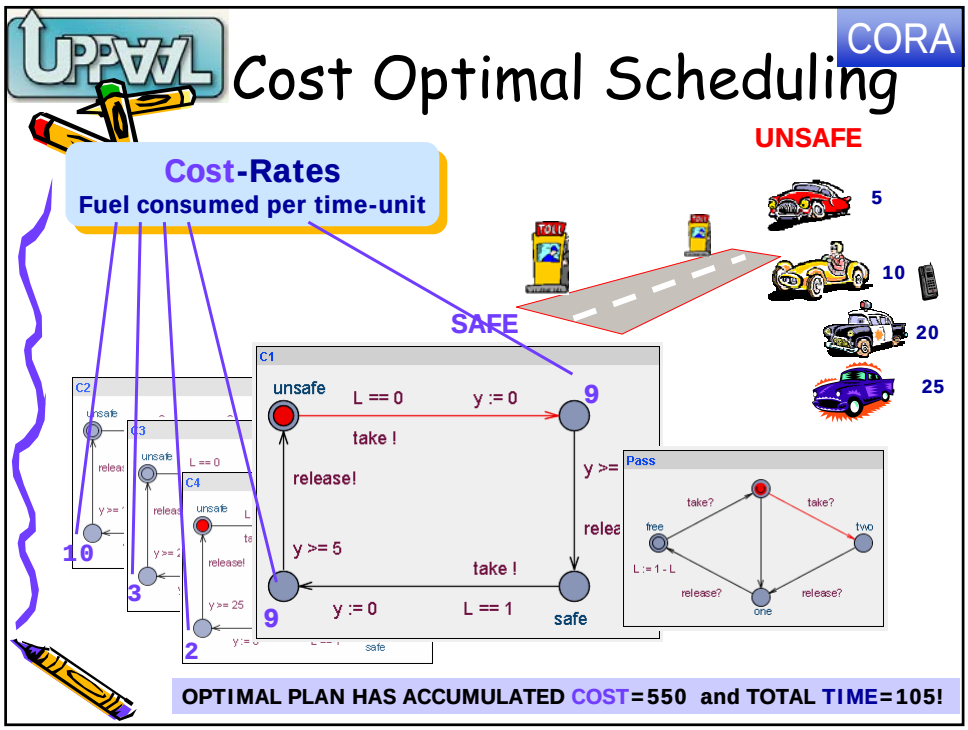
Crossing Times



SAFE

CAN THEY MAKE IT TO SAFE WITHIN 70 MINUTES ???


Real-time Scheduling
UNSAFE
Solve
Scheduling Problem
using UPPAAL
SAFE
5
10
20
25
C1
C2
C3
C4
L == 0
y := 0
take !
L == 1
safe
Pass
take?
free
two
one
release?
L := 1 - L


CORA
Cost Optimal Scheduling
UNSAFE
Cost-Rates
Fuel consumed per time-unit
SAFE
5
10
20
25
C1
C2
C3
C4
unsafe
L == 0
y := 0
take !
release!
y >= 5
L == 1
safe
9
10
3
2
Pass
take?
free
two
one
release?
L := 1 - L
OPTIMAL PLAN HAS ACCUMULATED COST=550 and TOTAL TIME=105!