

TP04

1. TP4 Warm Up : on a les différents critères

- Décision : fixer une variable
- Propagation : vérifier les contraintes et éliminer les valeurs pas satisfaisantes
- BackTracking : balayer tous les résultats et prend le min ou le max

2.

```
% performs tasks obey precedences
constraint
  forall ( i in PREC, j in pre )
  (
    s[i] + d[i] >= s[j]
  );

% no two disjoint tasks overlap
constraint
  forall ( i, j in TASK where i < j )
  (
    s[i] + d[i] <= s[j]    \/ s[j] + d[j] <= s[i]
  );
```

```
makespan = 44
  24  31  25  40  15  36   0   8
-----
=====
%%%mzn-stat: failures=401
%%%mzn-stat: initTime=0.003
%%%mzn-stat: nodes=803
%%%mzn-stat: peakDepth=8
%%%mzn-stat: propagations=64866
%%%mzn-stat: propagators=115
%%%mzn-stat: restarts=0
%%%mzn-stat: solutions=1
%%%mzn-stat: solveTime=0.007
%%%mzn-stat: variables=73
%%%mzn-stat-end
Finished in 878msec.
```

```
:: int_search(array1d(s), input_order, indomain_random, complete)
```

```
makespan = 44
 24  31  25  40  15  36   0   8
-----
=====
%%%mzn-stat: failures=49177
%%%mzn-stat: initTime=0.005
%%%mzn-stat: nodes=98355
%%%mzn-stat: peakDepth=29
%%%mzn-stat: propagations=2949378
%%%mzn-stat: propagators=115
%%%mzn-stat: restarts=0
%%%mzn-stat: solutions=1
%%%mzn-stat: solveTime=0.442
%%%mzn-stat: variables=73
%%%mzn-stat-end
Finished in 1s 165msec.
```

```
:: restart_luby(1)
```

```
makespan = 44
 24  31  25  40  15  36   0   8
-----
=====
%%%mzn-stat: failures=5907
%%%mzn-stat: initTime=0.004
%%%mzn-stat: nodes=11970
%%%mzn-stat: peakDepth=9
%%%mzn-stat: propagations=997645
%%%mzn-stat: propagators=115
%%%mzn-stat: restarts=1025
%%%mzn-stat: solutions=1
%%%mzn-stat: solveTime=0.125
%%%mzn-stat: variables=73
%%%mzn-stat-end
Finished in 999msec.
```