Experiment with Air Cargo Problem

Prabath Peiris

Air Cargo Problem

All the Air Cargo problems uses the following action schema

```
Action(Load(c, p, a),
PRECOND: At(c, a) At(p, a) Cargo(c) Plane(p) Airport(a)
EFFECT: At(c, a) In(c, p))

Action(Unload(c, p, a),
PRECOND: In(c, p) At(p, a) Cargo(c) Plane(p) Airport(a)
EFFECT: At(c, a) In(c, p))

Action(Fly(p, from, to),
PRECOND: At(p, from) Plane(p) Airport(from) Airport(to)
EFFECT: At(p, from) At(p, to))
```

| air_cargo_p1 | Breadth First | Depth First Graph | Uniform Cost Search |
|-----------------|---------------|-------------------|---------------------|
| Node Expansions | 43 | 12 | 55 |
| Goal Tests | 56 | 13 | 57 |
| Time Elapsed | 0.053 | 0.015 | 0.064 |
| Optimality | Yes | Yes | Yes |

Table 1: Metrixs for non-huristic planning solution searches for air_cargo_p1

| air_cargo_p2 | Breadth First | Depth First Graph | Uniform Cost Search |
|-----------------|---------------|-------------------|---------------------|
| Node Expansions | 3401 | 350 | 4761 |
| Goal Tests | 4672 | 351 | 4763 |
| Time Elapsed | 20.8 | 2.2 | 18.36 |
| Optimality | Yes | No | Yes |

Table 2: Metrixs for non-huristic planning solution searches for air_cargo_p2

| air_cargo_p2 | Breadth First | Depth First Graph | Uniform Cost Search |
|-----------------|---------------|-------------------|---------------------|
| Node Expansions | 14491 | 3491 | 17615 |
| Goal Tests | 17947 | 3492 | 17617 |
| Time Elapsed | 147.28 | 71.8 | 76.0 |
| Optimality | Yes | No | Yes |

Table 3: Metrixs for non-huristic planning solution searches for air_cargo_p3