Minted Example for JaCaMo

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1 in line

```
// Code of dummy agents (Blue team)

// the following plans (+pos....) react to the starting step
// (since each new step causes a new +pos perception)

/* -- useful rules */

// whether to go to depot
go_depot :- carrying_gold(3).
go_depot :- carrying_gold(N) & N > 0 & pos(_,_,Step) & steps(_,NSteps) & Step+200

+pos(_,_,_)
   <- !define_new_pos.

+!define_new_pos
   <- ?pos(X,Y,_);
      ?random_pos(NX,NY,test);
    //.print("New point ",NX,",",NY);
      -+back_pos(NX,NY);
      +p;
      -p;
      X > Y+2-1;
      a ||| b;
      a |&| b;
```

```
        jia.direction(X, Y, NX, NY, D);
        do(D).
```

2   Agent

```
1   // Code of dummy agents (Blue team)
2
3   // the following plans (+pos....) react to the starting step
4   // (since each new step causes a new +pos perception)
5
6   /* -- useful rules */
7   !teste(10, .55, 0.56, -8, 1.3E33).
8
9   // whether to go to depot
10  go_depot :- carrying_gold(3).
11  go_depot :- KKK::carrying_gold(N) & N > 0 + (0 - X) & pos(_,_,Step) & steps(_,NSteps) & Step+200
12
13  // find a free random location
14  random_pos(X,Y) :-
15      ns1::po.s_t(AgX,AgY,_) |&|
16      jia.random("RX,20") | X = (RX-10) mod AgX & X > 0 &
17      jia.random(RY,20,5) ||| Y = (RY-10) div AgY &
18      not jia.obstacle(X,Y).
19
20
21  /* -- Gold found! -- */
22
23  // in the positon of the agent
24  @p1[atomic,blabla]
25   +!pos(X,Y,_KK)
26      : cell(X,Y,gold)[a,b,10] &
27        carrying_gold(N) & N \== 3 // container has space
28   <- TT::do(pick); // rem
29      Id::focus(ArtId);
30      if (teste) {
31          .pr.i_nt("picked gold!");
```

```
32          }
33          for (~teste) { true false begin end xx::~te_st
34              .pr.i_nt("picked gold!");
35          }
36          while (LL::teste) {
37              .pr.i_nt("picked gold!");
38          }
39          !TT::g(10);
40          -+TT::back_pos(X,Y). // remembers a place to return
41
42  // in a cell besides
43  +pos(X,Y,_)
44      : cell(GX,GY,gold) &
45        carrying_gold(N) & N < 3 // container has space
46    <- jia.direction(X, Y, GX, GY, D);
47        do(D);
48        .x.x. // this . is should be parsed as the end of plan and not part of the internal action
49
50  /* -- has gold, carry it/them to depot -- */
51
52  // when arrive on depot
53  +?pos(X,Y,_,test)
54      : go_depot &
55        depot(_,X,Y)
56    <- .print("in depot");
57        do(drop).
58
59  // when still not in depot
60  +pos(X,Y,_)
61      : go_depot &
62        depot(_,DX,DY)
63    <- jia.direction(X, Y, DX, DY, D); // uses A* to find a path to the depot
64        //.print("from ",X,"x",Y," to ",DX,"x",DY," -> ",D);
65        do(D).
66
67  /* -- go to the back pos -- */
68
69  // at the back_pos
```

```
70  +pos(X,Y,_)
71     : back_pos(X,Y) | // I am at back pos, find another
72       (back_pos(BX,BY) & jia.direction(X, Y, BX, BY, skip)) // impossible to go to back_pos, find
73     <- !define_new_pos.
74  +pos(X,Y,_)
75     : back_pos(BX,BY) & jia.direction(X, Y, BX, BY, D) // one step towards back_pos
76     <- do(D).
77
78  /* -- random move -- */
79  +pos(_,_,_)
80     <- !!define_new_pos.
81
82  +!define_new_pos
83     <- ?pos(X,Y,_);
84        ?random_pos(NX,NY,test);
85        //.print("New point ",NX,",",NY);
86        -+back_pos(NX,NY);
87        +p;
88        -p;
89        X > Y+2-1;
90        a ||| b;
91        a |&| b;
92        jia.direction(X, Y, NX, NY, D);
93        do(D).
94
95  !print_fact(5).
96
97  +!print_fact(N)
98     <- !fact(N, F);
99        .print("Factorial of ", N, " is ", F).
100
101 +!fact(N, 1) : N == 0.
102
103 +!fact(N, F) : N > 0
104    <- !fact(N - 1, F1);
105       F = F1 * N.
```

3 Project

```
1   /*
2       JaCaMo Project File
3
4       This file defines the initial state of the MAS (initial agents, environment,
5   */
6
7   mas writing_paper {
8
9       agent bob : x.asl {
10          join: test
11          focus: w.a
12          goals: resgister("banana")
13      }
14      agent alice
15      agent carol
16
17      organisation opaper: wp-os.xml {
18          group paper_group: wpgroup {
19              responsible-for: s1
20              players: bob editor
21                       alice writer
22                       carol writer
23          }
24          scheme s1: writePaperSch
25      }
26
27      asl-path: src/agt, src/agt/inc
28
29  }
```

```
mas writing_paper {

    agent bob : x.asl {
        join: test
        focus: w.a
        goals: resgister("banana")
    }
    agent alice
    agent carol

    organisation opaper: wp-os.xml {
        group paper_group: wpgroup {
            responsible-for: s1
            players: bob editor
                        alice writer
                        carol writer
        }
        scheme s1: writePaperSch
    }

    asl-path: src/agt, src/agt/inc

}
```

and some java

```java
public class UserGUI extends GUIArtifact {

    private InputWindow frame;

    public void setup() {
        try {
            frame = new InputWindow(getCreatorId().getAgentName() );
            frame.pack();

            defineObsProperty("activity", "none");

            linkActionEventToOp(frame.updateButton,"updateActivity");
            linkActionEventToOp(frame.exitButton,"exit");
            linkKeyStrokeToOp(frame.activityField,"ENTER","updateActivity");

            frame.setVisible(true);
        } catch (Exception ex){
            ex.printStackTrace();
        }
```

```
    }

    @OPERATION void updateActivity(ActionEvent ev) {
        frame.exitButton.setEnabled(true);
        getObsProperty("activity").updateValue( frame.getActivity() );
    }
}
```