

```

1  MACHINE
2    Generic
3  SEES
4    GenericCtx
5  VARIABLES  $t, x_p, x_s$ 
6  INVARIANTS
7    inv1:  $t \in \mathbb{R}^+$ 
8    inv2:  $x_p \in \mathbb{R} \leftrightarrow S$ 
9    inv3:  $[0, t] \subseteq \text{dom}(x_p)$ 
10   inv4:  $x_s \in STATES$ 
11  EVENTS
12  INITIALISATION
13  THEN
14    act1:  $t := 0$ 
15    act2:  $x_p := \{0\} \rightarrow S$ 
16    act3:  $x_s := STATES$ 
17  END
18
19  Transition
20  ANY  $s$ 
21  WHERE
22    grd1:  $s \in \mathbb{P}1(STATES)$ 
23  THEN
24    act1:  $x_s := s$ 
25  END
26
27  Sense
28  ANY  $s, p$ 
29  WHERE
30    grd1:  $s \in \mathbb{P}1(STATES)$ 
31    grd2:  $p \in \mathbb{P}(STATES \times \mathbb{R} \times S)$ 
32    grd3:  $(x_s \mapsto t \mapsto x_p(t)) \in p$ 
33  THEN
34    act1:  $x_s := s$ 
35  END
36
37  Behave
38  ANY  $e, Inv, tp$ 
39  WHERE
40    grd1:  $e \in \mathbf{DE}(S)$ 
41    grd2:  $\mathbf{Solvable}([t, tp], e)$ 
42    grd3:  $Inv \subseteq S$ 
43    grd4:  $x_p(t) \in Inv$ 
44    grd5:  $tp \in \mathbb{R}^+$ 
45    grd6:  $t < tp$ 
46    grd7:  $CBAPsolutionOfFIS(t, tp, x_p, e, Inv)$ 
47  THEN
48    act1:
49       $t, x_p := |$ 
50       $x'_p \in \mathbb{R} \leftrightarrow S \wedge t' = tp \wedge$ 
51       $[0, t'] \subseteq \text{dom}(x'_p) \wedge$ 
52       $CBAPsolutionOf(t, t', x_p, x'_p, e, Inv)$ 
53  END
54
55  Actuate
56  ANY  $e, s, Inv, tp$ 
57  WHERE
58    grd1:  $e \in \mathbf{DE}(S)$ 
59    grd2:  $\mathbf{Solvable}([t, tp], e)$ 
60    grd3:  $s \subseteq STATES$ 
61    grd4:  $x_s \in s$ 
62    grd5:  $Inv \subseteq S$ 
63    grd6:  $x_p(t) \in Inv$ 
64    grd7:  $tp \in \mathbb{R}^+$ 
65    grd8:  $t < tp$ 
66    grd9:  $CBAPsolutionOfFIS(t, tp, x_p, e, Inv)$ 
67  THEN
68    act1:
69       $t, x_p := |$ 
70       $x'_p \in \mathbb{R} \leftrightarrow S \wedge t' = tp \wedge$ 
71       $[0, t'] \subseteq \text{dom}(x'_p) \wedge$ 
72       $CBAPsolutionOf(t, t', x_p, x'_p, e, Inv)$ 
73  END

```

