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1  ---------- MODULE FischerPreface ----------
2  EXTENDS Reals

4  Max(a, b) ≜ IF a ≥ b THEN a ELSE b
5  ----------
6  CONSTANTS Thread, Delta, Epsilon

8  ASSUME
9      ∧ Delta ∈ Real
10     ∧ Epsilon ∈ Real
11     ∧ 0 < Delta
12     ∧ Delta ≤ Epsilon

14 NotAThread ≜ CHOOSE t : t ∉ Thread
15 ----------
16 VARIABLES x, pc, ubTimer, lbTimer, now, counter

18 vars ≜ ⟨x, pc, ubTimer, lbTimer, now, counter⟩

20 TypeOK ≜
21     ∧   x ∈ Thread ∪ {NotAThread}
22     ∧   pc ∈ [Thread → {"ncs", "a", "b", "c", "cs", "d"}]
23     ∧   ubTimer ∈ [Thread → Real]
24     ∧   lbTimer ∈ [Thread → Real]
25     ∧ now ∈ Real \* now is unbounded
26     ∧ counter ∈ [Thread → Nat]
27 ----------
28 Init ≜
29     ∧ x = NotAThread
30     ∧ pc = [t ∈ Thread ↦ "ncs"]
31     ∧ ubTimer = [t ∈ Thread ↦ Infinity]
32     ∧ lbTimer = [t ∈ Thread ↦ 0]
33     ∧ now = 0
34     ∧ counter = [t ∈ Thread ↦ 0]
35 ----------
36 At(t, loc) ≜ pc[t] = loc

38 GoTo(t, loc) ≜ pc′ = [pc EXCEPT ![t] = loc]

40 GoFromTo(t, loc1, loc2) ≜
41     ∧ At(t, loc1)
42     ∧ GoTo(t, loc2)

44 TimedOut(t, timer) ≜ timer[t] = 0
45 ----------
46 MutualExclusion ≜
47   ∀ t1, t2 ∈ Thread : (t1 ≠ t2) ⇒ ¬At(t1, "cs") ∨ ¬At(t2, "cs")
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48 └──────────────────────────────────────────────────────────────────────┘
    \ * Modification History
    \ * Last modified Wed Aug 04 20:26:52 CST 2021 by hengxin
    \ * Created Wed Aug 04 15:47:49 CST 2021 by hengxin
```