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1  ┌────────────────── MODULE CASPaxosH ───────────────────┐
    CASPaxos spec with the “history” variable.
6  EXTENDS CASPaxos, Sequences
7  ┌──────────────────┐
8  Event  $\triangleq$  [type : {“invoke”, “response”}, bal : Ballot]
9  ┌──────────────────┐
10 VARIABLES history
12 varsH  $\triangleq$   $\langle vars, history \rangle$ 
13 ┌──────────────────┐
14 TypeOKH  $\triangleq$ 
15    $\wedge$  TypeOK
16    $\wedge$  history  $\in Seq(Event)$ 
17 ┌──────────────────┐
18 InitH  $\triangleq$ 
19    $\wedge$  Init
20    $\wedge$  history =  $\langle \rangle$ 
21 ┌──────────────────┐
22 Phase1aH(b)  $\triangleq$ 
23    $\wedge$  Phase1a(b)
24    $\wedge$  history' = Append(history, [type  $\mapsto$  “invoke”, bal  $\mapsto$  b])
26 Phase1bH(a)  $\triangleq$ 
27    $\wedge$  Phase1b(a)
28    $\wedge$  UNCHANGED  $\langle history \rangle$ 
30 Phase2aH(b, v)  $\triangleq$ 
31    $\wedge$  Phase2a(b, v)
32    $\wedge$  UNCHANGED  $\langle history \rangle$ 
34 Phase2bH(a)  $\triangleq$ 
35    $\wedge$  Phase2b(a)
36    $\wedge$  UNCHANGED  $\langle history \rangle$ 
38 RespondH(b)  $\triangleq$ 
39    $\wedge$  Respond(b)
40    $\wedge$  history' = Append(history, [type  $\mapsto$  “response”, bal  $\mapsto$  b])
41 ┌──────────────────┐
42 NextH  $\triangleq$ 
43    $\vee \exists b \in Ballot :$ 
44      $\vee$  Phase1aH(b)
45      $\vee \exists v \in Value : Phase2aH(b, v)$ 
46      $\vee$  RespondH(b)
47    $\vee \exists a \in Acceptor :$ 
48      $\vee$  Phase1bH(a)
49      $\vee$  Phase2bH(a)

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51 $SpecH \triangleq InitH \wedge \Box[NextH]_{varsH}$

52]

* Modification History

* Last modified *Wed Jul 27 00:15:30 CST 2022* by *hengxin*

* Created *Tue Jul 26 23:30:04 CST 2022* by *hengxin*