Model checking the *Jupiter* protocol presented by *Attiya* and others.

7 EXTENDS *Op*

8 ├──

9 CONSTANTS
10   *Server*,   the (unique) server replica
11   *Client*   the set of client replicas

13 VARIABLES
        For the client replicas:

17   *cbuf*,   *cbuf*[*c*]: buffer (of operations) at the client $c \in Client$
18   *crec*,   *crec*[*c*]: the number of new messages have been received by the client $c \in Client$
19   since the last time a message was sent
20   *cstate*,   *cstate*[*c*]: state (the list content) of the client $c \in Client$

        For the server replica:

25   *sbuf*,   *sbuf*[*c*]: buffer (of operations) at the *Server*, one per client $c \in Client$
26   *srec*,   *srec*[*c*]: the number of new messages have been . . ., one per client $c \in Client$
27   *sstate*   *sstate*: state (the list content) of the server *Server*

28 ├──

29 *TypeOK* $\triangleq$
        For the client replicas:

33     $\land cbuf \in [Client \to Seq(Op)]$
34     $\land crec \in [Client \to Nat]$
35     $\land cstate \in [Client \to List]$

        For the server replica:

39     $\land sbuf \in [Client \to Seq(Op)]$
40     $\land srec \in [Client \to Nat]$
41     $\land sstate \in [Client \to List]$

42 ├──

The *Init* predicate.

46 *Init* $\triangleq$
        For the client replicas:

50     $\land cbuf = [c \in Client \mapsto \langle\rangle]$
51     $\land crec = [c \in Client \mapsto 0]$
52     $\land cstate = [c \in Client \mapsto \langle\rangle]$

        For the server replica:

56     $\land sbuf = [c \in Client \mapsto \langle\rangle]$
57     $\land srec = [c \in Client \mapsto 0]$
58     $\land sstate = [c \in Client \mapsto \langle\rangle]$

59 ├──

Client $c \in Client$ generates and performs an operation *op*.

1

63 $Do(c,\, op) \;\triangleq\; \text{FALSE}$

64 ├──┤

The next state relation

68 $Next \;\triangleq\; \text{FALSE}$

69 └──┘

\ * Modification History
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