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1  |----- MODULE CComm -----|
2  EXTENDS SequenceUtils
3  |-----|
4  CONSTANTS
5      Client, the set of clients
6      Server, the (unique) server
7      Msg     the set of messages
8  |-----|
9  VARIABLES
10     cincoming, cincoming[c]: incoming FIFO channel at client  $c \in Client$ 
11     sincoming  incoming FIFO channel at the Server
12 |-----|
13 TypeOK  $\triangleq$ 
14      $\wedge$  cincoming  $\in [Client \rightarrow Seq(Msg)]$ 
15      $\wedge$  sincoming  $\in Seq(Msg)$ 
17 Init  $\triangleq$ 
18      $\wedge$  cincoming =  $[c \in Client \mapsto \langle \rangle]$ 
19      $\wedge$  sincoming =  $\langle \rangle$ 
21 EmptyChannel  $\triangleq$  Init
22 |-----|
23 CSend(msg)  $\triangleq$  A client sends a message msg to the Server.
24      $\wedge$  sincoming' = Append(sincoming, msg)
25      $\wedge$  UNCHANGED cincoming
27 CRev(c)  $\triangleq$  Client c receives and consumes a message from the Server.
28      $\wedge$  cincoming[c]  $\neq \langle \rangle$ 
29      $\wedge$  cincoming' = [cincoming EXCEPT ![c] = Tail(@)]
30      $\wedge$  UNCHANGED sincoming
31 |-----|
32 SRev  $\triangleq$  The Server receives and consumes a message.
33      $\wedge$  sincoming  $\neq \langle \rangle$ 
34      $\wedge$  sincoming' = Tail(sincoming)
36 SSend(c, cmsg)  $\triangleq$  The Server sends a message cmsg[cl] to client cl (other than c).
37      $\wedge$  cincoming' = [cl  $\in$  Client  $\mapsto$  IF cl = c
38                               THEN cincoming[cl]
39                               ELSE Append(cincoming[cl], cmsg[cl])]
41 SSendSame(c, msg)  $\triangleq$  The Server broadcasts the message msg to all clients other than c.
42      $\wedge$  SSend(c, [cl  $\in$  Client  $\mapsto$  msg])
43 |-----|
    \ * Modification History
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