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1  |----- MODULE JupiterInterface -----|
   | This module declares the parameters and defines the operators that describe the interface of a |
   | family of Jupiter specs. |
6  | EXTENDS Integers, SequenceUtils, OT |
7  |-----|
8  | CONSTANTS
9      Client,      the set of client replicas
10     Server,      the (unique) server replica
11     Char,        the set of characters allowed to be inserted
12     InitState    the initial state of each replica

14 | ASSUME We assume that all inserted elements are unique.
15      $\wedge$   $Range(InitState) \cap Char = \{\}$  due to the uniqueness requirement
16 |-----|
17 | VARIABLES
18     state,      state[r]: state (the list content) of replica  $r \in Replica$ 
19     cincoming,  cincoming[c]: incoming channel at the client  $c \in Client$ 
20     sincoming,  incoming channel at the Server
21     chins       a set of chars allowed to insert; this is for model checking

23 | intVars  $\triangleq \langle state, cincoming, sincoming, chins \rangle$ 
24 |-----|
25 | Comm(Msg)  $\triangleq$  INSTANCE CSComm
26 |
27 | Replica  $\triangleq Client \cup \{Server\}$ 
28 |
29 | List  $\triangleq Seq(Char \cup Range(InitState))$  all possible lists
30 | MaxLen  $\triangleq Cardinality(Char) + Len(InitState)$  the max length of lists in any states
31 |
32 | ClientNum  $\triangleq Cardinality(Client)$ 
33 | Priority  $\triangleq$  CHOOSE  $f \in [Client \rightarrow 1 \dots ClientNum] : Injective(f)$ 
34 |-----|
35 | TypeOKInt  $\triangleq$ 
36 |      $\wedge state \in [Replica \rightarrow List]$ 
37 |      $\wedge chins \subseteq Char$ 
38 |
39 | InitInt  $\triangleq$ 
40 |      $\wedge state = [r \in Replica \mapsto InitState]$ 
41 |      $\wedge chins = Char$ 
42 |-----|
   | The set of all operations. Note: The positions are indexed from 1. |
46 | Rd  $\triangleq [type : \{ "Rd" \}]$ 
47 | Del  $\triangleq [type : \{ "Del" \}, pos : 1 \dots MaxLen]$ 
48 | Ins  $\triangleq [type : \{ "Ins" \}, pos : 1 \dots (MaxLen + 1), ch : Char, pr : 1 \dots ClientNum]$  pr: priority
49 |
50 | Op  $\triangleq Ins \cup Del$  Now we don't consider Rd operations
51 |-----|

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* Modification History
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