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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      Char,          the set of characters
10     Client,        the set of client replicas
11     Server,        the (unique) server replica
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

27 | Replica  $\triangleq Client \cup \{Server\}$ 

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 state

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      $\wedge chins \subseteq Char$ 

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

50 | Op  $\triangleq Ins \cup Del$  Now we don't consider Rd operations
51 |-----|

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* Modification History
* Last modified *Mon Dec 31 18:51:58 CST 2018* by *hengxin*
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