
MODULE *InnerChannel*

EXTENDS *Sequences*
 CONSTANT *Message*
 VARIABLES *chan, q*

TypeInvariant \triangleq $\wedge \text{chan} \in [\text{msg} : \text{Message}, \text{canSend} : \text{BOOLEAN}]$
 $\wedge q \in \text{Seq}(\text{Message})$

Init \triangleq $\wedge \text{TypeInvariant}$
 $\wedge \text{chan.canSend} = \text{TRUE}$
 $\wedge q = \langle \rangle$

Send(m) \triangleq IF *chan.canSend*
 THEN $\wedge \text{chan.msg} = m$
 $\wedge \text{chan.canSend} = \text{FALSE}$
 $\wedge \text{UNCHANGED } q$
 ELSE $\wedge q' = \text{Append}(q, m)$
 $\wedge \text{UNCHANGED } \langle \text{chan} \rangle$

Rcv \triangleq IF $q = \langle \rangle$
 THEN $\wedge \neg \text{chan.canSend}$
 $\wedge \text{chan}' = [\text{chan} \text{ EXCEPT } !.\text{canSend} = \text{TRUE}]$
 $\wedge \text{UNCHANGED } \langle q \rangle$
 ELSE $\wedge \neg \text{chan.canSend}$
 $\wedge \text{chan}' = [\text{chan} \text{ EXCEPT } !.\text{msg} = \text{Head}(q)]$
 $\wedge q' = \text{Tail}(q)$

Next \triangleq $\vee \exists m \in \text{Message} : \text{Send}(m)$
 $\vee \text{Rcv}$

Spec \triangleq *Init* $\wedge \Box[\text{Next}]_{\langle \text{chan}, q \rangle}$

\ * Modification History
 \ * Last modified *Mon Nov 13 00:09:13 GMT 2017* by *affan*
 \ * Created *Mon Nov 13 00:03:53 GMT 2017* by *affan*