

## Answer

If  $Msg$  equals the empty set, then the formula

$$\exists x \in Msg : ch' = Append(ch, v)$$

equals FALSE . Hence, the *Send* action always equals FALSE, so no *Send* action can occur. Since a *Rcv* cannot occur if no *Send* action has put a message in the channel, no steps are possible. Therefore, the only behavior satisfying the specification is one that stops in its initial state.

To run TLC on a model with  $N = 0$ , you must first comment out the ASSUME. TLC then reports that deadlock is reached in the initial state. If you run it with deadlock detection disabled, TLC will show there is only one reachable state (which can only be the initial state).

[CLOSE](#)