
MODULE *asyncinterface*

EXTENDS *TLC*, *Naturals*
 CONSTANT *Data*
 VARIABLES *val*, *rdy*, *ack*
 $Init \triangleq \wedge val \in Data$
 $\wedge rdy \in \text{BOOLEAN}$
 $\wedge ack = rdy$
 $Send \triangleq \wedge rdy = ack$
 $\wedge val' \in Data$
 $\wedge rdy' = 1 - rdy$
 $\wedge \text{UNCHANGED } ack$
 $Rcv \triangleq \wedge rdy \neq ack$
 $\wedge ack' = 1 - ack$
 $\wedge \text{UNCHANGED } \langle val, rdy \rangle$
 $Next \triangleq Send \vee Rcv$
 $Spec \triangleq Init \wedge \Box [Next]_{\langle val, rdy, ack \rangle}$

THEOREM $Spec \Rightarrow \Box Init$
