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MODULE *AsyncInterface*

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EXTENDS *Naturals*  
 CONSTANT *Data*  
 VARIABLE *val*, *rdy*, *ack*

*TypeInvariant*  $\triangleq$   $\wedge val \in Data$   
 $\wedge rdy \in \{0, 1\}$   
 $\wedge ack \in \{0, 1\}$

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*Init*  $\triangleq$   $\wedge val \in Data$   
 $\wedge rdy \in \{0, 1\}$   
 $\wedge ack = rdy$

*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*  $\triangleq Init \wedge \Box [Next]_{\langle val, rdy, ack \rangle}$

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THEOREM *Spec*  $\Rightarrow \Box TypeInvariant$

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\\* Modification History  
 \\* Last modified *Thu May 16 13:28:08 PDT 2019* by *jasondebolt*  
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