─────── MODULE *Handshake* ───────

EXTENDS *Integers*, *Sequences*

$Put(s) \triangleq Append(s, \text{"widget"})$
$Get(s) \triangleq Tail(s)$

$a \oplus b \triangleq (a + b)\%2$

```
*************************************************************************

--algorithm Handshake{
 variables p = 0, c  = 0, box = ⟨⟩ ;
 process ( Producer = 0 )
   { p1: while ( TRUE )
           { await p =  c ;
              box := Put(box) ;
              p := p ⊕ 1
              }
    }
 process ( Consumer = 1 )
   { c1: while ( TRUE )
           { await p ≠ c ;
              box := Get(box) ;
              c := c ⊕ 1
              }
     }
 }
 *************************************************************************
```

BEGIN TRANSLATION
VARIABLES p, c, box

$vars \triangleq \langle p, c, box \rangle$

$ProcSet \triangleq \{0\} \cup \{1\}$

$Init \triangleq$ Global variables
        $\land p = 0$
        $\land c = 0$
        $\land box = \langle \rangle$

$Producer \triangleq \land p = c$
               $\land box' = Put(box)$
               $\land p' = p \oplus 1$
               $\land c' = c$

$Consumer \triangleq \land p \neq c$
               $\land box' = Get(box)$
               $\land c' = c \oplus 1$

1

$$\land \; p' = p$$

$Next \;\triangleq\; Producer \lor Consumer$

$Spec \;\triangleq\; Init \land \Box[Next]_{vars}$

END TRANSLATION

$A \;\triangleq\;$ INSTANCE $Alternation$ WITH $b \leftarrow p \oplus c, \; box \leftarrow box$

\ * Modification History
\ * Last modified *Thu Jun* 05 14:48:50 *CST* 2014 by *yaojingguo*
\ * Created *Thu Jun* 05 09:49:40 *CST* 2014 by *yaojingguo*