
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{
  variable p = 0, c = 0, box = ⟨⟩;

  process ( Producer = 0 )
  {
    c0: 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 ($chksum(pcal) = \text{"fab02d27"} \wedge chksum(tla) = \text{"99a6a85d"}$)

VARIABLES p, c, box

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

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

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

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

$$\wedge c' = c$$

$$Consumer \triangleq \begin{array}{l} \wedge p \neq c \\ \wedge box' = Get(box) \\ \wedge c' = c \oplus 1 \\ \wedge p' = p \end{array}$$

$$Next \triangleq Producer \vee Consumer$$

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

END TRANSLATION

* Modification History
* Last modified *Mon Oct 04 11:21:30 CST 2021* by *wrz*
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