MODULE *BoundedChannel*

EXTENDS *Integers*, *Sequences*

$ISeq(S) \triangleq [(Nat \setminus \{0\}) \to S]$

$ITail(iseq) \triangleq [i \in (Nat \setminus \{0\}) \mapsto iseq[i+1]]$

$IHead(iseq) \triangleq iseq[1]$

CONSTANT N, Msg, $Input$

ASSUME $\land N \in Nat \setminus \{0\}$
$\land Input \in ISeq(Msg)$

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(*****************************************
--algorithm BChan{
   variables in = Input, out = ⟨⟩, ch = ⟨⟩ ;
   process ( Send = 0 ) {
      s: while ( TRUE ) {
            await Len(ch) ≠ N ;
            ch := Append(ch, IHead(in)) ;
            in := ITail(in) } }
   process ( Rcv = 1 ) {
      r: while ( TRUE ) {
            await Len(ch) ≠ 0 ;
            out := Append(out, Head(ch)) ;
            ch := Tail(ch) } } }
*****************************************)
```

CLOSE