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MODULE *Channels*

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EXTENDS *Naturals, Sequences*

CONSTANTS  $P, T$

ASSUME  $\wedge P \in \text{Nat}$  Number of processes

$\wedge T \in \text{Nat}$  Number of tokens

$NULL \triangleq \text{CHOOSE } NULL : NULL \notin \text{Nat}$

**--algorithm** *channels*{

**variables**  $Process = \{\}$ ;

$tokens = T$ ;

$found = NULL$ ;

$i = 0$ ;  $result = \langle \rangle$ ;

**process** (  $go \in \text{Nat} \setminus \{0\}$  ) {

*start*: **await**  $self \in Process$ ;

*work*:

**await**  $found = NULL$ ;

$found := self$ ;

*release*:  $tokens := tokens + 1$ ;

}

**process** (  $Main = 0$  )

{

*loop*: **while** (  $i \leq P$  ) {

*take*: **await**  $tokens > 0$ ;

$tokens := tokens - 1$ ;

*start*:  $Process := Process \cup \{i\}$ ;

*next*:  $i := i + 1$ ;

} ;

$result := \langle \rangle$ ;

$i := 1$ ;

*collect*: **while** (  $i \leq P$  ) {

**await**  $found \neq NULL$ ;

$result := \text{Append}(result, found)$ ;

$found := NULL$ ;

}

}

}

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