EXTENDS $Naturals$, $Sequences$

CONSTANTS P, T
ASSUME $\land P \in Nat$ Number of processes
$\qquad \land T \in Nat$ Number of tokens

$NULL \triangleq$ CHOOSE $NULL : NULL \notin Nat$

   --algorithm $channels\{$

variables $processes = \{\}$;
$\qquad\qquad tokens = T$;
$\qquad\qquad found = NULL$;
$\qquad\qquad i \quad = 1$; $result = \langle\rangle$;

process ($go \in Nat \setminus \{0\}$) **{**
   $start$:   **await** $self \in processes$;
   $work$:
         await $found = NULL$;
         $found := self$;
   $release$: $tokens := tokens + 1$;
}

process ($Main = 0$) **{**
   $loop$:   **while** ($i \leq P$) **{**
      $take$:   **await** $tokens > 0$;
              $tokens := tokens - 1$;
      $start$: $processes := processes \cup \{i\}$;
      $next$: $i := i + 1$;
   } ;

   $result := \langle\rangle$;
   $collect$: **while** ($processes \neq \{\}$) **{**
      await $found \neq NULL$;
      $result := Append(result, found)$;
      $processes := processes \setminus \{found\}$;
      $found := NULL$;
   }
}

}