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--algorithm Bakery
{variable_num = [i \in Procs] -> 0, flag = [i \in Procs] -> FALSE;
process (p \in Procs)
  variables unchecked = {}, max = 0, nxt = 1;
  {ncs: while (TRUE)
    {e1: either {flag[self] = ~flag[self];
    goto e1}
    or {flag[self] = TRUE;
    unchecked = Procs \ {self};
    max = 0;
    }
  }
  e2: while (unchecked # {})
    {with (i \in unchecked)
    {unchecked = unchecked \ {i};
    if (num[i] > max) {max = num[i]}
    }
  };
  e3: either {with (k \in Nat) {num[self] = k};
  goto e3}
  or {with (i \in {j \in Nat : j > max})
  {num[self] = i}
  };
  e4: either {flag[self] = ~flag[self];
  goto e4}
  or {flag[self] = FALSE;
  unchecked = Procs \ {self}
  };
  w1: while (unchecked # {})
    {with (i \in unchecked) {nxt = i};
    await ~flag[nxt];
    w2: await \ / num[nxt] = 0
    \ / << num[self], self >> \ prec << num[nxt], nxt >>;
    unchecked = unchecked \ {nxt};
  };
  cs: skip; \ * the critical section;
  exit: either {with (k \in Nat) {num[self] = k};
  goto exit}
  or {num[self] = 0}
  }
}
}

```

CLOSE