

## 1 Circus Example

```
RANGE == 0..60
channel tick, time
channel out : RANGE × RANGE
channel inc, minsReq
channel ans : RANGE

chanset Sync  $\hat{=}$  {inc, minsReq, ans}

process Seconds  $\hat{=}$ 
begin
  state SecSt  $\hat{=}$  [sec : RANGE]
  SecInit  $\hat{=}$  [SecSt' | sec' = 0]
  IncSec  $\hat{=}$  [ $\Delta$ SecSt | sec' = (sec + 1) mod 60]
  RunSec  $\hat{=}$  tick → IncSec; (sec = 0) & inc → Skip
               □ (sec ≠ 0) & Skip
               □ time → minsReq → ans?mins → out!(mins, sec) → Skip
  • SecInit; (μ X • RunSec; X)
end

process Minutes  $\hat{=}$ 
begin
  state MinSt  $\hat{=}$  [min : RANGE]
  MinInit  $\hat{=}$  [MinSt' | min' = 0]
  IncMin  $\hat{=}$  [ $\Delta$ MinSt | min' = (min + 1) mod 60]
  RunMin  $\hat{=}$  inc → IncMin
               □ minsReq → ans!min → Skip
  • MinInit; (μ X • RunMin; X)
end

process Chronometer  $\hat{=}$  (Seconds [| Sync |] Minutes) \ Sync
```