
MODULE *HourMinuteClock*

Specification of a clock that handles hours and minutes.

EXTENDS *Naturals*

VARIABLE *hr, min*

$Init \triangleq \wedge hr \in (1 \dots 12)$
 $\wedge min \in (0 \dots 59)$

Hour *hr* is unchanged if minute does not reach 60 and is zeroed.

$Next \triangleq \wedge min' = (min + 1) \% 60$
 $\wedge \text{IF } min = 0 \text{ THEN } hr' = (hr \% 12) + 1$
 $\text{ELSE UNCHANGED } \langle hr \rangle$

$Spec \triangleq Init \wedge \Box [Next]_{\langle hr, min \rangle}$

THEOREM $Spec \Rightarrow \Box Init$
