

CONTEXT ClockShallowCtx

EXTENDS ShallowGenCtx

CONSTANTS tick_min, tick_hour, tick_midnight, init, pr

AXIOMS

axm1: $pr \in (\mathbb{Z} \times \mathbb{Z}) \mapsto St$

axm2: $partition(Ev, \{init\}, \{tick_midnight\}, \{tick_hour\}, \{tick_min\})$

axm3: $Event(mch) = Ev$

axm4: $State(mch) = St$

axm5: $Init(mch) = init$

axm6: $Progress(mch) = \{tick_midnight, tick_hour, tick_min\}$

axm7: $Inv(mch) = pr[\{m \mapsto h \mid m \in \mathbb{N} \wedge h \in \mathbb{N} \wedge m < 60 \wedge h < 24\}]$

axm8: $Thm(mch) = pr[\{m \mapsto h \mid m < 59 \vee (m = 59 \wedge h < 23) \vee (m = 59 \wedge h = 23)\}]$

axm9: $Variant(mch) = \{s, v, m, h \cdot s = pr(m \mapsto h) \wedge v = (24 * 60 - 1 - (m + h * 60)) \mid s \mapsto v\}$

axm10: $Ordinary(mch) = \{init, tick_midnight\}$

axm11: $Convergent(mch) = \{tick_min, tick_hour\}$

THEOREMS

thm1: $Event_WellCons(mch)$

thm2: $Variant_WellCons(mch)$

thm3: $Tag_Event_WellCons(mch)$

thm4: $Mch_THM(mch)$

END