

thm_2ETemporal_Logic_2ENOT_EVENTUAL
 (TMKBbk7X2XHuQ8ryPqnAumbp5HBZiezwdwh)

October 26, 2020

Definition 1 We define $c_2Emin_2E_3D$ to be $\lambda A. \lambda x \in A. \lambda y \in A. inj_o (x = y)$ of type $\iota \Rightarrow \iota$.

Definition 2 We define $c_2Ebool_2E_7T$ to be $(ap (ap (c_2Emin_2E_3D (2^2)) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x))$

Definition 3 We define $c_2Ebool_2E_21$ to be $\lambda A_27a : \iota. (\lambda V0P \in (2^{A_27a}).(ap (ap (c_2Emin_2E_3D (2^{A_27a})) (\lambda V1t \in 2.V1t))$

Definition 4 We define $c_2Ebool_2E_EF$ to be $(ap (c_2Ebool_2E_21 2) (\lambda V0t \in 2.V0t))$.

Definition 5 We define $c_2Emin_2E_3D_3D_3E$ to be $\lambda P \in 2. \lambda Q \in 2. inj_o (p \ P \Rightarrow p \ Q)$ of type ι .

Definition 6 We define $c_2Ebool_2E_7E$ to be $(\lambda V0t \in 2. (ap (ap c_2Emin_2E_3D_3D_3E V0t) c_2Ebool_2E_EF))$

Let $ty_2Enum_2Enum : \iota$ be given. Assume the following.

$$nonempty \ ty_2Enum_2Enum \quad (1)$$

Let $c_2Earithmetic_2E_2B : \iota$ be given. Assume the following.

$$c_2Earithmetic_2E_2B \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \quad (2)$$

Definition 7 We define $c_2ETemporal_Logic_2EALWAYS$ to be $\lambda V0P \in (2^{ty_2Enum_2Enum}). \lambda V1t0 \in ty_2Enum$

Definition 8 We define $c_2Emin_2E_40$ to be $\lambda A. \lambda P \in 2^A. \text{if } (\exists x \in A. p (ap P x)) \text{ then } (\text{the } (\lambda x. x \in A \wedge p$ of type $\iota \Rightarrow \iota$.

Definition 9 We define $c_2Ebool_2E_3F$ to be $\lambda A_27a : \iota. (\lambda V0P \in (2^{A_27a}).(ap V0P (ap (c_2Emin_2E_40 A$

Definition 10 We define $c_2ETemporal_Logic_2EEVENTUAL$ to be $\lambda V0P \in (2^{ty_2Enum_2Enum}). \lambda V1t0 \in ty_2Enum$

Assume the following.

$$True \quad (3)$$

Assume the following.

$$(\forall V0t1 \in 2. (\forall V1t2 \in 2. (((p V0t1) \Rightarrow (p V1t2)) \Rightarrow (((p V1t2) \Rightarrow (p V0t1)) \Rightarrow ((p V0t1) \Leftrightarrow (p V1t2)))))) \quad (4)$$

Assume the following.

$$\forall A_27a.\text{nonempty } A_27a \Rightarrow (\forall V0x \in A_27a. ((V0x = V0x) \Leftrightarrow \text{True})) \quad (5)$$

Theorem 1

$$(\forall V0a \in (2^{ty_2Enum_2Enum}). (\forall V1t0 \in ty_2Enum_2Enum. \\ ((\neg(p (ap (ap c_2ETemporal_Logic_2EEVENTUAL V0a) V1t0))) \Leftrightarrow (p (ap (ap c_2ETemporal_Logic_2EALWAYS (\lambda V2t \in ty_2Enum_2Enum. \\ (ap c_2Ebool_2E_7E (ap V0a V2t)))) V1t0)))))$$