

thm_2Ebool_2EFORALL__itself (TMbQ94ZERkWTsC7dqxhSoJnCDUt4nrizAj4)

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Definition 1 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 .

Let $ty_2Ebool_2Eitself : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty A0 \Rightarrow nonempty (ty_2Ebool_2Eitself A0) \quad (1)$$

Let $c_2Ebool_2Ethe_value : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A.27a.nonempty A.27a \Rightarrow c_2Ebool_2Ethe_value A.27a \in (ty_2Ebool_2Eitself A.27a) \quad (2)$$

Definition 2 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 3 We define c_2Ebool_2EET to be $(ap (ap (c_2Emin_2E_3D (2^2))) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x)$

Definition 4 We define $c_2Ebool_2E_21$ to be $\lambda A.27a : \iota.(\lambda V0P \in (2^{A.27a}).(ap (ap (c_2Emin_2E_3D (2^{A.27a})))$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(((p V0t1) \Rightarrow (p V1t2)) \Rightarrow (((p V1t2) \Rightarrow (p V0t1)) \Rightarrow ((p V0t1) \Leftrightarrow (p V1t2)))))) \quad (3)$$

Assume the following.

$$\forall A.27a.nonempty A.27a \Rightarrow (\forall V0i \in (ty_2Ebool_2Eitself A.27a).(V0i = (c_2Ebool_2Ethe_value A.27a))) \quad (4)$$

Theorem 1

$$\forall A.27a.nonempty A.27a \Rightarrow (\forall V0P \in (2^{(ty_2Ebool_2Eitself A.27a)}).(((\forall V1x \in (ty_2Ebool_2Eitself A.27a).(p (ap V0P V1x))) \Leftrightarrow (p (ap V0P (c_2Ebool_2Ethe_value A.27a))))))$$