thm_2EnormalForms_2EUNIV__POINT (TMau1cdLt1XFdXU8vWby3U2FVjXbEbmasqS)

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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* $\iota \Rightarrow \iota$.

Let $c\_2EnormalForms\_2EUNIV\_\_POINT : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2EnormalForms\_2EUNIV\_\_POINT\ A\_27a \in (A\_27a^{(2^{A\_27a})}) \tag{1}$$

Definition 2 *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 3 *We define* c_2Ebool_2ET *to be* $(ap\ (ap\ (\mathsf{c\_2Emin\_2E\_3D}\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1$

Definition 4 *We define* c_2Ebool_2E_21 *to be* $\lambda A\_27a : \iota.(\lambda V0P \in (2^{A\_27a}).(ap\ (ap\ (\mathsf{c\_2Emin\_2E\_3D}\ (2^{A\_27}$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(((p\ V0t1) \Rightarrow (p\ V1t2)) \Rightarrow (((p\ V1t2) \Rightarrow (p\ V0t1)) \Rightarrow ((p\ V0t1) \Leftrightarrow (p\ V1t2)))))) \tag{2}$$

Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow (\forall V0p \in (2^{A\_27a}).((p\ (ap\ V0p\ (ap\ (c\_2EnormalForms\_2EUNIV\_\_POINT\ A\_27a)\ V0p))) \Rightarrow (\forall V1x \in A\_27a.(p\ (ap\ V0p\ V1x))))) \tag{3}$$

Theorem 1

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow (\forall V0p \in (2^{A\_27a}).((p\ (ap\ V0p\ (ap\ (c\_2EnormalForms\_2EUNIV\_\_POINT\ A\_27a)\ V0p))) \Leftrightarrow (\forall V1x \in A\_27a.(p\ (ap\ V0p\ V1x)))))$$