

thm_2EnormalForms_2EEXT_POINT (TML- WLpySEdSbmxymYM1d2ZkeZhqnyonfphV)

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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 $\iota \Rightarrow \iota$.

Definition 2 We define c_2Ebool_2ET to be $(ap (ap (c_2Emin_2E_3D (2^2)) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x))$

Let $c_2EnormalForms_2EEXT_POINT : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow \forall A_27b.nonempty A_27b \Rightarrow c_2EnormalForms_2EEXT_POINT A_27a A_27b \in ((A_27a^{(A_27b^{A_27a})})^{(A_27b^{A_27a})}) \quad (1)$$

Definition 3 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 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.

$$True \quad (2)$$

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.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.((V0x = V0x) \Leftrightarrow True)) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow \forall A_27b.nonempty A_27b \Rightarrow (\\ & \forall V0f \in (A_27b^{A_27a}).(\forall V1g \in (A_27b^{A_27a}).(((ap V0f \\ & (ap (ap (c_2EnormalForms_2EEXT_POINT A_27a A_27b) V0f) V1g)) = \\ & (ap V1g (ap (ap (c_2EnormalForms_2EEXT_POINT A_27a A_27b) V0f) \\ & V1g))) \Rightarrow (V0f = V1g)))) \end{aligned} \quad (5)$$

Theorem 1

$$\begin{aligned} & \forall A_{27a}.nonempty\ A_{27a} \Rightarrow \forall A_{27b}.nonempty\ A_{27b} \Rightarrow (\\ & \quad \forall V_0f \in (A_{27b}^{A_{27a}}). (\forall V_1g \in (A_{27b}^{A_{27a}}). (((ap\ V_0f \\ & (ap\ (ap\ (c_2EnormalForms_2EEXT_POINT\ A_{27a}\ A_{27b})\ V_0f)\ V_1g)) = \\ & (ap\ V_1g\ (ap\ (ap\ (c_2EnormalForms_2EEXT_POINT\ A_{27a}\ A_{27b})\ V_0f) \\ & \quad V_1g))) \Leftrightarrow (V_0f = V_1g)))) \end{aligned}$$