

thm_2Erelation_2EIDEM__SC
(TMVguhqqRp5Nfj1oVh2drDqDmQEUXjujrvf)

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 $c_2Ebool_2E_2T$ to be $(ap (ap (c_2Emin_2E_3D (2^2)) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x))$

Definition 3 We define $c_2Emin_2E_3D_3D_3E$ 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 $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap (ap (c_2Emin_2E_3D (2^{A_27a}))$

Definition 5 We define $c_2Ebool_2E_5C_2F$ to be $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_2Ebool_2E_21 2)) (\lambda V2t \in 2.V2t)))$

Definition 6 We define $c_2Erelation_2ESC$ to be $\lambda A_27a : \iota.\lambda V0R \in ((2^{A_27a})^{A_27a}).\lambda V1x \in A_27a.\lambda V2y \in A_27a.$

Definition 7 We define $c_2Ecombin_2Eo$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda A_27c : \iota.\lambda V0f \in (A_27b^{A_27c}).\lambda V1g \in (A_27c^{A_27b}).$

Definition 8 We define $c_2Erelation_2EIDEM$ to be $\lambda A_27z : \iota.\lambda V0f \in (A_27z^{A_27z}).(ap (ap (c_2Emin_2E_3D (2^{A_27z}))$

Assume the following.

$$True \tag{1}$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0t \in 2.((\forall V1x \in A_27a.(p V0t)) \Leftrightarrow (p V0t))) \tag{2}$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.((V0x = V0x) \Leftrightarrow True)) \tag{3}$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0R \in ((2^{A_27a})^{A_27a}). ((ap (c_2Erelation_2ESC A_27a) (ap (c_2Erelation_2ESC A_27a) V0R)) = (ap (c_2Erelation_2ESC A_27a) V0R))) \tag{4}$$

Assume the following.

$$\begin{aligned} \forall A_{27z}. \text{nonempty } A_{27z} \Rightarrow (\forall V0f \in (A_{27z}^{A_{27z}}). ((p \\ (ap (c_2Erelation_2EIDEM A_{27z}) V0f)) \Leftrightarrow (\forall V1x \in A_{27z}. ((\\ ap V0f (ap V0f V1x) = (ap V0f V1x)))))) \end{aligned} \quad (5)$$

Theorem 1

$$\forall A_{27a}. \text{nonempty } A_{27a} \Rightarrow (p (ap (c_2Erelation_2EIDEM ((2^{A_{27a}})^{A_{27a}})) \\ (c_2Erelation_2ESC A_{27a})))$$