thm_2Erelation_2Einv__INVOL (TMMph17eHPKf1cQ4xgR1nuJZxnJoHmisYCv)

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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* $(ap\ (ap\ (\mathsf{c\_2Emin\_2E\_3D}\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V$

Definition 3 *We define* c_2Ebool_2E_21 *to be* $\lambda A\_27a : \iota.(\lambda V0P \in (2^{A\_27a}).(ap\ (ap\ (\mathsf{c\_2Emin\_2E\_3D}\ (2^{A\_27}$

Definition 4 *We define* c_2Erelation_2Einv *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.\lambda V0R \in ((2^{A\_27b})^{A\_27a}).\lambda V1x \in A\_2$

Definition 5 *We define* c_2Ecombin_2EK *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.(\lambda V0x \in A\_27a.(\lambda V1y \in A\_27b.V0x))$

Definition 6 *We define* c_2Ecombin_2ES *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.\lambda A\_27c : \iota.(\lambda V0f \in ((A\_27c^{A\_27b})^{A\_27a}$

Definition 7 *We define* c_2Ecombin_2EI *to be* $\lambda A\_27a : \iota.(ap\ (ap\ (\mathsf{c\_2Ecombin\_2ES}\ A\_27a\ (A\_27a^{A\_27a})\ A\_$

Definition 8 *We define* c_2Ecombin_2Eo *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.\lambda A\_27c : \iota.\lambda V0f \in (A\_27b^{A\_27c}).\lambda V1g$

Definition 9 *We define* c_2Erelation_2EINVOL *to be* $\lambda A\_27z : \iota.\lambda V0f \in (A\_27z^{A\_27z}).(ap\ (ap\ (\mathsf{c\_2Emin\_2E}$

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.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow (\forall V0R \in ((2^{A\_27b})^{A\_27a}).((ap\ (\mathsf{c\_2Erelation\_2Einv}\ A\_27b\ A\_27a)\ (ap\ (\mathsf{c\_2Erelation\_2Einv}\ A\_27a\ A\_27b)\ V0R)) = V0R)) \tag{4}$$

Assume the following.

$$\forall A\_27z.nonempty\ A\_27z \Rightarrow (\forall V0f \in (A\_27z^{A\_27z}).((p\ (ap\ (\mathsf{c\_2Erelation\_2EINVOL}\ A\_27z)\ V0f)) \Leftrightarrow (\forall V1x \in A\_27z.((ap\ V0f\ (ap\ V0f\ V1x)) = V1x)))) \tag{5}$$

Theorem 1

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow (p\ (ap\ (\mathsf{c\_2Erelation\_2EINVOL}\ ((2^{A\_27a})^{A\_27a}))\ (\mathsf{c\_2Erelation\_2Einv}\ A\_27a\ A\_27a)))$$