thm_2Erelation_2Ereflexive__RTC
(TMJMw8jXdFCsf57MgJetUrGAZKAnYGJ4q9a)

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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.

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_2ET *to be* $(ap\ (ap\ (\text{c\_2Emin\_2E\_3D}\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1$

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

Definition 5 *We define* c_2Ebool_2E_2F_5C *to be* $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap\ (\text{c\_2Ebool\_2E\_21}\ 2)\ (\lambda V2t \in 2$

Definition 6 *We define* c_2Erelation_2ERTC *to be* $\lambda A\_27a : \iota.\lambda V0R \in ((2^{A\_27a})^{A\_27a}).\lambda V1a \in A\_27a.\lambda V2b$

Definition 7 *We define* c_2Erelation_2Ereflexive *to be* $\lambda A\_27a : \iota.\lambda V0R \in ((2^{A\_27a})^{A\_27a}).(ap\ (\text{c\_2Ebool\_2E}$

Assume the following.

$$\forall A\_27a.nonempty\ A\_27a{\Rightarrow}(\forall V0R \in ((2^{A\_27a})^{A\_27a}).$$
$$(p\ (ap\ (\text{c\_2Erelation\_2Ereflexive}\ A\_27a)\ (ap\ (\text{c\_2Erelation\_2ERTC} \qquad (1)$$
$$A\_27a)\ V0R))))$$

Theorem 1

$$\forall A\_27a.nonempty\ A\_27a{\Rightarrow}(\forall V0R \in ((2^{A\_27a})^{A\_27a}).$$
$$(p\ (ap\ (\text{c\_2Erelation\_2Ereflexive}\ A\_27a)\ (ap\ (\text{c\_2Erelation\_2ERTC}$$
$$A\_27a)\ V0R))))$$