

thm_2Equotient_2EFUN_MAP_I (TMcThweme- qbCGLRGqZjZdXbxVHFE2AEHsTr)

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Definition 1 We define `c_2Emin_2E_3D_3D_3E` to be $\lambda P \in 2. \lambda Q \in 2. \text{inj_o } (p \Rightarrow Q)$ of type ι .

Definition 2 We define `c_2Emin_2E_3D` to be $\lambda A. \lambda x \in A. \lambda y \in A. \text{inj_o } (x = y)$ of type $\iota \Rightarrow \iota$.

Definition 3 We define `c_2Ebool_2ET` to be $(\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^2)) (\lambda V0x \in 2. V0x)) (\lambda V1x \in 2. V1x))$

Definition 4 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 5 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 6 We define `c_2Ecombin_2EI` to be $\lambda A_27a : \iota. (\text{ap } (\text{ap } (\text{c_2Ecombin_2ES } A_27a (A_27a^{A_27a})) A_27a))$

Definition 7 We define `c_2Ebool_2E_21` to be $\lambda A_27a : \iota. (\lambda V0P \in (2^{A_27a}). (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^{A_27a}))))$

Definition 8 We define `c_2Equotient_2E_2D_2D_3E` to be $\lambda A_27a : \iota. \lambda A_27b : \iota. \lambda A_27c : \iota. \lambda A_27d : \iota. \lambda V0f$

Assume the following.

$$\text{True} \tag{1}$$

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

Assume the following.

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

Assume the following.

$$\forall A_27a. \text{nonempty } A_27a \Rightarrow (\forall V0x \in A_27a. ((\text{ap } (\text{c_2Ecombin_2EI } A_27a) V0x) = V0x)) \tag{4}$$

Theorem 1

$$\forall A_27a. \text{nonempty } A_27a \Rightarrow \forall A_27b. \text{nonempty } A_27b \Rightarrow (\text{ap } (\text{ap } (\text{c_2Equotient_2E_2D_2D_3E } A_27a A_27b A_27a A_27b) (\text{c_2Ecombin_2EI } A_27a)) (\text{c_2Ecombin_2EI } A_27b)) = (\text{c_2Ecombin_2EI } (A_27b^{A_27a})))$$