

# thm\_2Equotient\_2EQUOTIENT\_\_REP\_\_REFL (TMLb5QaGsunSrAxVvzrhXUL8yTWstJfNvFR)

October 26, 2020

**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  $\iota$ .

**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_2E_2T` 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_2Ebool_2E_21` to be  $\lambda A_27a : \iota. (\lambda V0P \in (2^{A_27a}). (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^{A_27a})) (\lambda V1x \in 2. V1x)) (\lambda V2x \in 2. V2x)))$

**Definition 5** We define `c_2Ebool_2E_2F_5C` to be  $(\lambda V0t1 \in 2. (\lambda V1t2 \in 2. (\text{ap } (\text{c_2Ebool_2E_21 } 2) (\lambda V2t \in 2. V2t)))$

**Definition 6** We define `c_2Equotient_2EQUOTIENT` to be  $\lambda A_27a : \iota. \lambda A_27b : \iota. \lambda V0R \in ((2^{A_27a})^{A_27a}). \lambda V1abs \in (A_27b)^{A_27a}. \lambda V2rep \in (A_27a)^{A_27b}. ((p (\text{ap } (\text{ap } (\text{ap } (\text{c_2Equotient_2EQUOTIENT } A_27a } A_27b) V0R) V1abs) V2rep)) \Rightarrow (\forall V3a \in A_27b. (p (\text{ap } (\text{ap } V0R (\text{ap } V2rep V3a)) (\text{ap } V2rep V3a))))))$

**Theorem 1**

$$\begin{aligned} & \forall A_27a. \text{nonempty } A_27a \Rightarrow \forall A_27b. \text{nonempty } A_27b \Rightarrow ( \\ & \quad \forall V0R \in ((2^{A_27a})^{A_27a}). (\forall V1abs \in (A_27b)^{A_27a}). \\ & (\forall V2rep \in (A_27a)^{A_27b}). ((p (\text{ap } (\text{ap } (\text{ap } (\text{c_2Equotient_2EQUOTIENT } \\ & \quad A_27a } A_27b) V0R) V1abs) V2rep)) \Rightarrow (\forall V3a \in A_27b. (p (\text{ap } (\text{ap } \\ & \quad V0R (\text{ap } V2rep V3a)) (\text{ap } V2rep V3a)))))) \end{aligned}$$