

thm_2Eupdate_2EUPDATE_def
(TMMF66qM2iEgkYA5VgwZGWL28HBRoHoitWd)

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Definition 1 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 2 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 3 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 4 We define `c_2Ebool_2E_2F` to be $(\text{ap } (\text{c_2Ebool_2E_21 } 2)) (\lambda V0t \in 2. V0t)$.

Definition 5 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 6 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 7 We define `c_2Emin_2E_40` to be $\lambda A. \lambda P \in 2^A. \text{if } (\exists x \in A. p (\text{ap } P x)) \text{ then } (the (\lambda x. x \in A \wedge p x))$ of type $\iota \Rightarrow \iota$.

Definition 8 We define `c_2Ebool_2ECOND` to be $\lambda A_27a : \iota. (\lambda V0t \in 2. (\lambda V1t1 \in A_27a. (\lambda V2t2 \in A_27a. (\text{ap } (\text{c_2Emin_2E_3D } (2^{A_27a}))$

Definition 9 We define `c_2Ecombin_2EUPDATE` to be $\lambda A_27a : \iota. \lambda A_27b : \iota. \lambda V0a \in A_27a. \lambda V1b \in A_27b. (\text{ap } (\text{ap } (\text{ap } (\text{c_2Ebool_2ECOND } A_27b) (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } A_27a) V0a) V1b) (\text{ap } V2f V3c))))))$

Theorem 1

$$\forall A_27a. \text{nonempty } A_27a \Rightarrow \forall A_27b. \text{nonempty } A_27b \Rightarrow (\forall V0a \in A_27a. (\forall V1b \in A_27b. ((\text{ap } (\text{ap } (\text{c_2Ecombin_2EUPDATE } A_27a } A_27b) V0a) V1b) = (\lambda V2f \in (A_27b^{A_27a}). (\lambda V3c \in A_27a. (\text{ap } (\text{ap } (\text{ap } (\text{c_2Ebool_2ECOND } A_27b) (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } A_27a) V0a) V3c)) V1b) (\text{ap } V2f V3c))))))))$$