

thm_2Ebool_2EDATATYPE_BOOL
(TMRJJz8sLauBEE3GGFh3guxh6Lxb65e8ju9)

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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_2ET` to be $(\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^2))) (\lambda V 0x \in 2. V 0x)) (\lambda V 1x \in 2. V 1x)$

Definition 3 We define `c_2Ebool_2E_21` to be $\lambda A_27a : \iota. (\lambda V 0P \in (2^{A_27a}). (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^{A_27a}))))$

Definition 4 We define `c_2Ebool_2EF` to be $(\text{ap } (\text{c_2Ebool_2E_21 } 2) (\lambda V 0t \in 2. V 0t))$.

Definition 5 We define `c_2Ebool_2EDATATYPE` to be $\lambda A_27a : \iota. (\lambda V 0x \in A_27a. \text{c_2Ebool_2ET})$.

Assume the following.

$$\forall A_27a. \text{nonempty } A_27a \Rightarrow (\forall V 0x \in A_27a. ((\text{p } (\text{ap } (\text{c_2Ebool_2EDATATYPE } A_27a) V 0x)) \Leftrightarrow \text{True})) \tag{1}$$

Theorem 1

$$(\forall V 0bool \in ((2^2)^2). ((\text{p } (\text{ap } (\text{c_2Ebool_2EDATATYPE } 2) (\text{ap } (\text{ap } V 0bool \text{ c_2Ebool_2ET } \text{c_2Ebool_2EF}))) \Leftrightarrow \text{True})))$$