

thm_2Ebool_2ELET__RAND
(TMXtC2CaL5CGyP78WQsnUeNGejCjWhYDrRY)

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Definition 1 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 2 We define c_2Ebool_2ELET to be $\lambda A_27a : \iota.\lambda A_27b : \iota.(\lambda V0f \in (A_27b^{A_27a}).(\lambda V1x \in A_27a$

Definition 3 We define c_2Ebool_2EET to be $(ap (ap (c_2Emin_2E_3D (2^2)) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x$

Definition 4 We define $c_2Ebool_2E_21$ to be $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap (ap (c_2Emin_2E_3D (2^{A_27a}$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow \forall A_27b.nonempty A_27b \Rightarrow (\\ & \forall V0f \in (A_27b^{A_27a}).(\forall V1x \in A_27a.((ap (ap (c_2Ebool_2ELET \\ & A_27a A_27b) V0f) V1x) = (ap V0f V1x)))) \end{aligned} \quad (1)$$

Theorem 1

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow \forall A_27b.nonempty A_27b \Rightarrow (\\ & \forall V0P \in (2^{A_27b}).(\forall V1N \in (A_27b^{A_27a}).(\forall V2M \in \\ & A_27a.((p (ap V0P (ap (ap (c_2Ebool_2ELET A_27a A_27b) (\lambda V3x \in \\ & A_27a.(ap V1N V3x))) V2M))) \Leftrightarrow (p (ap (ap (c_2Ebool_2ELET A_27a 2) \\ & (\lambda V4x \in A_27a.(ap V0P (ap V1N V4x)))) V2M)))))) \end{aligned}$$