

thm_2Ebool_2ERES_FORALL_THM
(TMPYc89G22JGhTorQS5S4gWCQKed8bmPKrE)

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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_2EIN` to be $\lambda A. 27a : \iota. (\lambda V0x \in A. 27a. (\lambda V1f \in (2^{A-27a}). (\text{ap } V1f \ V0x)))$

Definition 3 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 4 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 5 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 6 We define `c_2Ebool_2ERES_FORALL` to be $\lambda A. 27a : \iota. (\lambda V0p \in (2^{A-27a}). (\lambda V1m \in (2^{A-27a}). (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a}))))$

Theorem 1

$$\begin{aligned} & \forall A. 27a. \text{nonempty } A. 27a \Rightarrow (\forall V0P \in (2^{A-27a}). (\forall V1f \in \\ & (2^{A-27a}). ((p (\text{ap } (\text{ap } (\text{c_2Ebool_2ERES_FORALL } A. 27a) \ V0P) \ V1f))) \Leftrightarrow \\ & (\forall V2x \in A. 27a. ((p (\text{ap } (\text{ap } (\text{c_2Ebool_2EIN } A. 27a) \ V2x) \ V0P)) \Rightarrow \\ & (p (\text{ap } V1f \ V2x)))))) \end{aligned}$$