thm_2Ecardinal_2ECONJ__ACI (TMXgUywTNZiu1HF7tL9JbjHS3GECN3eEd9Y)

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Definition 1 *We define* c_2Emin_2E_3D_3D_3E *to be* $\lambda P \in 2.\lambda Q \in 2.inj\_\_o\ (p\ P \Rightarrow p\ Q)$ *of type* ι.

Definition 2 *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 3 *We define* c_2Ebool_2ET *to be* $(ap\ (ap\ (\mathsf{c\_2Emin\_2E\_3D}\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1$

Definition 4 *We define* c_2Ebool_2E_21 *to be* $\lambda A\_27a : \iota.(\lambda V0P \in (2^{A\_27a}).(ap\ (ap\ (\mathsf{c\_2Emin\_2E\_3D}\ (2^{A\_27}$

Definition 5 *We define* c_2Ebool_2E_2F_5C *to be* $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap\ (\mathsf{c\_2Ebool\_2E\_21}\ 2)\ (\lambda V2t \in 2$

Definition 6 *We define* c_2Ebool_2EF *to be* $(ap\ (\mathsf{c\_2Ebool\_2E\_21}\ 2)\ (\lambda V0t \in 2.V0t))$.

Definition 7 *We define* c_2Ebool_2E_7E *to be* $(\lambda V0t \in 2.(ap\ (ap\ \mathsf{c\_2Emin\_2E\_3D\_3D\_3E}\ V0t)\ \mathsf{c\_2Ebool\_2EF}$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(((p\ V0t1) \Rightarrow (p\ V1t2)) \Rightarrow (((p\ V1t2) \Rightarrow (p\ V0t1)) \Rightarrow ((p\ V0t1) \Leftrightarrow (p\ V1t2)))))) \tag{1}$$

Assume the following.

$$(\forall V0t \in 2.(False \Rightarrow (p\ V0t))) \tag{2}$$

Assume the following.

$$(\forall V0t \in 2.((\neg(p\ V0t)) \Rightarrow ((p\ V0t) \Rightarrow False))) \tag{3}$$

Theorem 1

$$(\forall V0r \in 2.(\forall V1p \in 2.(\forall V2q \in 2.((((p\ V1p) \wedge (p\ V2q)) \Leftrightarrow ((p\ V2q) \wedge (p\ V1p))) \wedge (((((p\ V1p) \wedge (p\ V2q)) \wedge (p\ V0r)) \Leftrightarrow ((p\ V1p) \wedge ((p\ V2q) \wedge (p\ V0r)))) \wedge ((((p\ V1p) \wedge ((p\ V2q) \wedge (p\ V0r))) \Leftrightarrow ((p\ V2q) \wedge ((p\ V1p) \wedge (p\ V0r)))) \wedge ((((p\ V1p) \wedge (p\ V1p)) \Leftrightarrow (p\ V1p)) \wedge (((p\ V1p) \wedge ((p\ V1p) \wedge (p\ V2q))) \Leftrightarrow ((p\ V1p) \wedge (p\ V2q))))))))))$$