thm_2Eres__quan_2ERES__ABSTRACT__EQUAL (TMQkponCLFs-BGHGcx7rBN1Xb8WwTcbiEofR)

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Let $c\_2Ebool\_2ERES\_\_ABSTRACT : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow c\_2Ebool\_2ERES\_\_ABSTRACT\ A\_27a\ A\_27b \in (((A\_27b^{A\_27a})^{(A\_27b^{A\_27a})})^{(2^{A\_27a})}) \tag{1}$$

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_2EIN *to be* $\lambda A\_27a : \iota.(\lambda V0x \in A\_27a.(\lambda V1f \in (2^{A\_27a}).(ap\ V1f\ V0x)))$

Definition 3 *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 4 *We define* c_2Ebool_2ET *to be* $(ap\ (ap\ (c\_2Emin\_2E\_3D\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1$

Definition 5 *We define* c_2Ebool_2E_21 *to be* $\lambda A\_27a : \iota.(\lambda V0P \in (2^{A\_27a}).(ap\ (ap\ (c\_2Emin\_2E\_3D\ (2^{A\_27}$

Definition 6 *We define* c_2Ebool_2E_2F_5C *to be* $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap\ (c\_2Ebool\_2E\_21\ 2)\ (\lambda V2t \in 2$

Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow (\forall V0p \in (2^{A\_27a}).(\forall V1m \in (A\_27b^{A\_27a}).(\forall V2x \in A\_27a.((p\ (ap\ (ap\ (c\_2Ebool\_2EIN\ A\_27a)\ V2x)\ V0p)) \Rightarrow ((ap\ (ap\ (ap\ (c\_2Ebool\_2ERES\_\_ABSTRACT\ A\_27a\ A\_27b)\ V0p)\ V1m)\ V2x) = (ap\ V1m\ V2x)))))) \wedge (\forall V3p \in (2^{A\_27a}).(\forall V4m1 \in (A\_27b^{A\_27a}).(\forall V5m2 \in (A\_27b^{A\_27a}).((\forall V6x \in A\_27a.((p\ (ap\ (ap\ (c\_2Ebool\_2EIN\ A\_27a)\ V6x)\ V3p)) \Rightarrow ((ap\ V4m1\ V6x) = (ap\ V5m2\ V6x)))) \Rightarrow ((ap\ (ap\ (c\_2Ebool\_2ERES\_\_ABSTRACT\ A\_27a\ A\_27b)\ V3p)\ V4m1) = (ap\ (ap\ (c\_2Ebool\_2ERES\_\_ABSTRACT\ A\_27a\ A\_27b)\ V3p)\ V5m2)))))) \tag{2}$$

Theorem 1

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow ($$
$$\forall V0p \in (2^{A\_27a}).(\forall V1m1 \in (A\_27b^{A\_27a}).(\forall V2m2 \in$$
$$(A\_27b^{A\_27a}).((\forall V3x \in A\_27a.((p\ (ap\ (ap\ (\mathsf{c\_2Ebool\_2EIN}$$
$$A\_27a)\ V3x)\ V0p)) \Rightarrow ((ap\ V1m1\ V3x) = (ap\ V2m2\ V3x)))) \Rightarrow ((ap\ (ap\ (c\_2Ebool\_2ERES\_\_ABSTRAC$$
$$A\_27a\ A\_27b)\ V0p)\ V1m1) = (ap\ (ap\ (c\_2Ebool\_2ERES\_\_ABSTRACT\ A\_27a$$
$$A\_27b)\ V0p)\ V2m2))))))$$