

thm_2EfcP_2Edatatype__bit1 (TMXWR9C4uYgcYT9z23tZnrSG6c973PPJa3r)

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Let $ty_2EfcP_2Ebit1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty_2EfcP_2Ebit1\ A0) \quad (1)$$

Let $c_2EfcP_2EBIT1C : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A.27a.nonempty\ A.27a \Rightarrow c_2EfcP_2EBIT1C\ A.27a \in (ty_2EfcP_2Ebit1\ A.27a) \quad (2)$$

Let $c_2EfcP_2EBIT1B : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A.27a.nonempty\ A.27a \Rightarrow c_2EfcP_2EBIT1B\ A.27a \in ((ty_2EfcP_2Ebit1\ A.27a)^{A.27a}) \quad (3)$$

Let $c_2EfcP_2EBIT1A : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A.27a.nonempty\ A.27a \Rightarrow c_2EfcP_2EBIT1A\ A.27a \in ((ty_2EfcP_2Ebit1\ A.27a)^{A.27a}) \quad (4)$$

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_2ET to be $(ap\ (ap\ (c_2Emin_2E_3D\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1x))$.

Definition 3 We define $c_2Ebool_2EDATATYPE$ to be $\lambda A.27a : \iota.(\lambda V0x \in A.27a.c_2Ebool_2ET)$.

Definition 4 We define $c_2Ebool_2E_21$ to be $\lambda A.27a : \iota.(\lambda V0P \in (2^{A.27a}).(ap\ (ap\ (c_2Emin_2E_3D\ (2^{A.27a}))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1x)))$.

Assume the following.

$$True \quad (5)$$

Assume the following.

$$\forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0x \in A.27a.((p\ (ap\ (c_2Ebool_2EDATATYPE\ A.27a)\ V0x)) \Leftrightarrow True)) \quad (6)$$

Theorem 1

$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0bit1 \in (((2^{(ty_2EfcP_2EBIT1\ A_27a)})^{(ty_2EfcP_2EBIT1\ A_27a)^{A_27a}}))^{(ty_2EfcP_2EBIT1\ A_27a)^{A_27a}}))$
 $(p\ (ap\ (c_2Ebool_2EDATATYPE\ 2)\ (ap\ (ap\ (ap\ V0bit1\ (c_2EfcP_2EBIT1A\ A_27a))\ (c_2EfcP_2EBIT1B\ A_27a))\ (c_2EfcP_2EBIT1C\ A_27a))))))$