thm_2Ecomplex_2ECOMPLEX__0 (TMQtWemLqiXKfAf2P3v3e2GSpTeFDoS4kHK)

October 26, 2020

Let $c_2Enum_2EZERO__REP : \iota$ be given. Assume the following.

$$c_2Enum_2EZERO__REP \in omega \tag{1}$$

Let $ty_2Enum_2Enum : \iota$ be given. Assume the following.

$$nonempty\ ty_2Enum_2Enum \tag{2}$$

Let $c_2Enum_2EABS__num : \iota$ be given. Assume the following.

$$c_2Enum_2EABS__num \in (ty_2Enum_2Enum^{omega}) \tag{3}$$

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_2Enum_2E0 *to be* $(ap\ c_2Enum_2EABS__num\ c_2Enum_2EZERO__REP)$.

Definition 3 *We define* c_2Ebool_2ET *to be* $(ap\ (ap\ (\mathsf{c_2Emin_2E_3D}\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1$

Let $ty_2Erealax_2Ereal : \iota$ be given. Assume the following.

$$nonempty\ ty_2Erealax_2Ereal \tag{4}$$

Let $c_2Ereal_2Ereal__of__num : \iota$ be given. Assume the following.

$$c_2Ereal_2Ereal__of__num \in (ty_2Erealax_2Ereal^{ty_2Enum_2Enum}) \tag{5}$$

Definition 4 *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 5 *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 6 *We define* c_2Ebool_2E_2F_5C *to be* $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap\ (\mathsf{c_2Ebool_2E_21}\ 2)\ (\lambda V2t \in 2$

Let $ty_2Epair_2Eprod : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow \forall A1.nonempty\ A1 \Rightarrow nonempty\ (ty_2Epair_2Eprod\ A0\ A1) \tag{6}$$

Let $c_2Epair_2EABS__prod : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Epair_2EABS__prod\ A_27a\ A_27b \in ((ty_2Epair_2Eprod\ A_27a\ A_27b)^{((2^{A_27b})^{A_27a})}) \tag{7}$$

Definition 7 *We define* c_2Epair_2E_2C *to be* $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0x \in A_27a.\lambda V1y \in A_27b.(ap\ (c_2E$

Definition 8 *We define* c_2Ecomplex_2Ecomplex__of__real *to be* $\lambda V0x \in ty_2Erealax_2Ereal.(ap\ (ap\ (\mathsf{c_2E}$

Definition 9 *We define* c_2Ecomplex_2Ecomplex__of__num *to be* $\lambda V0n \in ty_2Enum_2Enum.(ap\ \mathsf{c_2Ecompl}$

Assume the following.

$$True \tag{8}$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a.((V0x = V0x) \Leftrightarrow True)) \tag{9}$$

Theorem 1

$$((ap\ \mathsf{c_2Ecomplex_2Ecomplex__of__num\ c_2Enum_2E0}) = (ap\ \mathsf{c_2Ecomplex_2Ecomplex__of__real}\ (ap\ c_2Ereal_2Ereal__of__num\ \mathsf{c_2Enum_2E0})))$$