

thm_2Estring_2ESTRLEN__EXPLODE__THM
 (TMJxZGKY-
 wYexDWc5ntGxgkWNeQN1r8z8Vcd)

October 26, 2020

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

$$nonempty\ ty_2Enum_2Enum \tag{1}$$

Let $ty_2Elist_2Elist : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty_2Elist_2Elist\ A0) \tag{2}$$

Let $c_2Elist_2ELENGTH : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow c_2Elist_2ELENGTH\ A_27a \in (ty_2Enum_2Enum^{(ty_2Elist_2Elist\ A_27a)}) \tag{3}$$

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_2Ebool_2ET to be $(ap\ (ap\ (c_2Emin_2E_3D\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1x))$

Let $ty_2Estring_2Echar : \iota$ be given. Assume the following.

$$nonempty\ ty_2Estring_2Echar \tag{4}$$

Let $c_2Estring_2EIMPLODE : \iota$ be given. Assume the following.

$$c_2Estring_2EIMPLODE \in ((ty_2Elist_2Elist\ ty_2Estring_2Echar)^{(ty_2Elist_2Elist\ ty_2Estring_2Echar)}) \tag{5}$$

Let $c_2Estring_2EEXPLODE : \iota$ be given. Assume the following.

$$c_2Estring_2EEXPLODE \in ((ty_2Elist_2Elist\ ty_2Estring_2Echar)^{(ty_2Elist_2Elist\ ty_2Estring_2Echar)}) \tag{6}$$

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 $c_Ebool_2E_21$ to be $\lambda A_27a : \iota. (\lambda V0P \in (2^{A_27a}). (ap (ap (c_Emin_2E_3D (2^{A_27a})))$

Definition 5 We define $c_Ebool_2E_2F_5C$ to be $(\lambda V0t1 \in 2. (\lambda V1t2 \in 2. (ap (c_Ebool_2E_21 2) (\lambda V2t \in 2$

Assume the following.

$$True \tag{7}$$

Assume the following.

$$\forall A_27a. nonempty A_27a \Rightarrow (\forall V0x \in A_27a. ((V0x = V0x) \Leftrightarrow True)) \tag{8}$$

Assume the following.

$$(\forall V0s \in (ty_2Elist_2Elist ty_2Estring_2Echar). (((ap c_2Estring_2EEXPLODE V0s) = V0s) \wedge ((ap c_2Estring_2EIMPLODE V0s) = V0s))) \tag{9}$$

Theorem 1

$$(\forall V0s \in (ty_2Elist_2Elist ty_2Estring_2Echar). ((ap (c_2Elist_2ELENGTH ty_2Estring_2Echar) V0s) = (ap (c_2Elist_2ELENGTH ty_2Estring_2Echar) (ap c_2Estring_2EEXPLODE V0s))))$$