

thm_2Ebit_2EBITS__SLICE__THM
(TMdMEo9tzzSVTQfD8JhoiZKWiWbC44eVjS5)

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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 $(ap\ c_2Enum_2EABS_num\ c_2Enum_2EZERO_REP)$.

Let $c_2Earithmetic_2EDIV : \iota$ be given. Assume the following.

$$c_2Earithmetic_2EDIV \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \tag{4}$$

Definition 3 We define $c_2Emin_2E_3D_3E$ to be $\lambda P \in 2.\lambda Q \in 2.inj_o (p \Rightarrow Q)$ of type ι .

Definition 4 We define $c_2Earithmetic_2EZERO$ to be c_2Enum_2E0 .

Let $c_2Enum_2EREP_num : \iota$ be given. Assume the following.

$$c_2Enum_2EREP_num \in (\omega^{ty_2Enum_2Enum}) \tag{5}$$

Let $c_2Enum_2ESUC_REP : \iota$ be given. Assume the following.

$$c_2Enum_2ESUC_REP \in (\omega^{\omega}) \tag{6}$$

Definition 5 We define c_2Ebool_2ET to be $(ap\ (ap\ (c_2Emin_2E_3D\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1x))$

Assume the following.

$$(\forall V0n \in ty_2Enum_2Enum. (\forall V1q \in ty_2Enum_2Enum. (p (ap (ap (ap c_2Eprim_rec_2E_3C c_2Enum_2E0) V0n)) \Rightarrow ((ap (ap c_2Earithmetic_2EDIV (ap (ap c_2Earithmetic_2E_2A V1q) V0n)) V0n) = V1q)))))) \quad (12)$$

Assume the following.

$$(\forall V0n \in ty_2Enum_2Enum. (p (ap (ap c_2Eprim_rec_2E_3C c_2Enum_2E0) (ap (ap c_2Earithmetic_2EEXP (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT2 c_2Earithmetic_2EZERO))) V0n)))))) \quad (13)$$

Assume the following.

$$(\forall V0h \in ty_2Enum_2Enum. (\forall V1l \in ty_2Enum_2Enum. (\forall V2n \in ty_2Enum_2Enum. ((p (ap (ap c_2Eprim_rec_2E_3C V2n) (ap (ap c_2Earithmetic_2EEXP (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT2 c_2Earithmetic_2EZERO))) (ap c_2Enum_2ESUC V0h)))))) \Rightarrow ((ap (ap (ap c_2Ebit_2EBITS V0h) V1l) V2n) = (ap (ap c_2Earithmetic_2EDIV V2n) (ap (ap c_2Earithmetic_2EEXP (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT2 c_2Earithmetic_2EZERO))) V1l))))))) \quad (14)$$

Assume the following.

$$(\forall V0n \in ty_2Enum_2Enum. (\forall V1h \in ty_2Enum_2Enum. (\forall V2l \in ty_2Enum_2Enum. ((ap (ap (ap c_2Ebit_2ESLICE V1h) V2l) V0n) = (ap (ap c_2Earithmetic_2E_2A (ap (ap (ap c_2Ebit_2EBITS V1h) V2l) V0n)) (ap (ap c_2Earithmetic_2EEXP (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT2 c_2Earithmetic_2EZERO))) V2l)))))) \quad (15)$$

Assume the following.

$$(\forall V0h \in ty_2Enum_2Enum. (\forall V1l \in ty_2Enum_2Enum. (\forall V2n \in ty_2Enum_2Enum. (p (ap (ap c_2Eprim_rec_2E_3C (ap (ap c_2Ebit_2ESLICE V0h) V1l) V2n)) (ap (ap c_2Earithmetic_2EEXP (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT2 c_2Earithmetic_2EZERO))) (ap c_2Enum_2ESUC V0h)))))) \quad (16)$$

Assume the following.

$$True \quad (17)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a. ((V0x = V0x) \Leftrightarrow True)) \quad (18)$$

Assume the following.

$$(\forall V0t \in 2. (((True \Leftrightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Leftrightarrow True) \Leftrightarrow (p V0t)) \wedge (((False \Leftrightarrow (p V0t)) \Leftrightarrow \neg(p V0t)) \wedge (((p V0t) \Leftrightarrow False) \Leftrightarrow \neg(p V0t)))))) \quad (19)$$

Theorem 1

$$\begin{aligned} & (\forall V0h \in ty_2Enum_2Enum. (\forall V1l \in ty_2Enum_2Enum. (\\ & \quad \forall V2n \in ty_2Enum_2Enum. ((ap (ap (ap c_2Ebit_2EBITS V0h) V1l) \\ & (ap (ap (ap c_2Ebit_2ESLICE V0h) V1l) V2n)) = (ap (ap (ap c_2Ebit_2EBITS \\ & \quad V0h) V1l) V2n)))))) \end{aligned}$$