

thm_2Einteger_2EINT_10

(TMbeQhggtpaimmJCdPzgc1qHSSVrDzRLUr)

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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 $c_2Ebool_2E_21$ to be $\lambda A_27a : \iota. (\lambda V0P \in (2^{A_27a}). (ap (ap (c_2Emin_2E_3D (2^{A_27a})) (\lambda V1P \in 2.V1P)) (\lambda V2P \in 2.V2P))))$

Definition 4 We define c_2Ebool_2EF to be $(ap (c_2Ebool_2E_21 2) (\lambda V0t \in 2.V0t)))$.

Definition 5 We define $c_2Emin_2E_3D_3D_3E$ to be $\lambda P \in 2. \lambda Q \in 2. inj_o (p \Rightarrow p Q)$ of type ι .

Definition 6 We define $c_2Ebool_2E_7E$ to be $(\lambda V0t \in 2. (ap (ap c_2Emin_2E_3D_3D_3E V0t) c_2Ebool_2EF)))$

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

$$nonempty\ ty_2Enum_2Enum \quad (1)$$

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

$$\begin{aligned} \forall A0. nonempty\ A0 \Rightarrow \forall A1. nonempty\ A1 \Rightarrow nonempty\ (ty_2Epair_2Eprod \\ A0\ A1) \end{aligned} \quad (2)$$

Let $ty_2Einteger_2Eint : \iota$ be given. Assume the following.

$$nonempty\ ty_2Einteger_2Eint \quad (3)$$

Let $c_2Einteger_2Eint_REP_CLASS : \iota$ be given. Assume the following.

$$c_2Einteger_2Eint_REP_CLASS \in ((2^{(ty_2Epair_2Eprod\ ty_2Enum_2Enum\ ty_2Enum_2Enum)})^{ty_2Einteger_2Eint}) \quad (4)$$

Definition 7 We define $c_2Emin_2E_40$ to be $\lambda A. \lambda P \in 2^A. \text{if } (\exists x \in A. p (ap P x)) \text{ then } (\lambda x. x \in A \wedge p$ of type $\iota \Rightarrow \iota$.

Definition 8 We define $c_2Einteger_2Eint_REP$ to be $\lambda V0a \in ty_2Einteger_2Eint. (ap (c_2Emin_2E_40 (ty_2Einteger_2Eint$

Let $c_2Einteger_2Etint_eq : \iota$ be given. Assume the following

$$c_2Einteger_2Etint_eq \in ((2^{(ty_2Epair_2Eprod\ ty_2Enum_2Enum\ ty_2Enum_2Enum)})^{(ty_2Epair_2Eprod\ ty_2Enum)})^{(5)}$$

Let $c_2Enum_2EZERO_REP : \iota$ be given. Assume the following.

$$c_2Enum_2EZERO_REP \in \omega$$

Let $c_2Enum_2EABS_num : \iota$ be given. Assume the following.

$$c_2Enum_2EABS_num \in (ty_2Enum_2Enum^{omega}) \quad (7)$$

Definition 9 We define c_2Enum_2E0 to be $(ap\ c_2Enum_2EAABS_num\ c_2Enum_2EZERO_REP)$.

Definition 10 We define $\text{c_2Earithmetic_2EZERO}$ to be c_2Enum_2EO .

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

$$c_2Enum_2EREP_num \in (\omega^{ty_2Enum_2Enum}) \quad (8)$$

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

$$c_2Enum_2ESUC_REP \in (\omega^\omega) \quad (9)$$

Definition 11 We define c_2Enum_2ESUC to be $\lambda V0m \in ty_2Enum_2Enum.(ap\ c_2Enum_2EABS_num$

Let $c_2Earithmetic_2E_2B : \iota$ be given. Assume the following.

$$c_2Earithmetic_2E_2B \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum_2Enum})^{ty_2Enum_2Enum}) \\ (10)$$

Definition 12 We define $c_2Earithmetic_2EBIT1$ to be $\lambda V0n \in ty_2Enum_2Enum.(ap\ (ap\ c_2Earithmetic\ 2EBIT1\ n)\ V)$

Definition 13 We define `c_2Earthmetic_2ENUMERAL` to be $\lambda V0x \in ty_2Enum_2Enum. V0x$.

Definition 14 We define $c_2Ebool_2E_2F_5C$ to be $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_2Ebool_2E_21 2) (\lambda V2t \in$

Let $c_2Epair_2EABS_prod : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$\forall A_27a.\text{nonempty } A_27a \Rightarrow \forall A_27b.\text{nonempty } A_27b \Rightarrow c_2E\text{pair}_2EA$

$$A_{27a} A_{27b} \in ((ty_2Epair_2Eprod\ A_{27a}\ A_{27b})^{((2^{A_{27b}})^{...^{A_{27b}}})}) \quad (11)$$

Definition 10 We define **CHIEF ELEMENTS** to be all elements x in $\text{HILB}(n)$ such that $x_p \in \text{HILB}(m)$, $x_q \in \text{HILB}(n-m)$.

Definition 16 We define $c_{\text{ZLinteger}}(z, t)$ to be $(ap \circ ap)(c_{\text{ZLpan}}(z, t), c_{\text{ZLnam}}(z, t), c_{\text{ZLnam}}(z, t))$.

Let $c_{\text{EEL}iycr_EELi_ADS_CLASS}: i$ be given. Assume the following.

$$c_2Einteger_2Eint_ABS_CLASS \in (ty_2Einteger_2Eint^{\omega})$$

Definition 17 We define $c_2Einteger_2Eint_ABS$ to be $\lambda V0r \in (ty_2Epair_2Eprod ty_2Enum_2Enum ty_2Enum ty_2Enum)$

Definition 18 We define $c_2Einteger_2Eint_0$ to be $(ap\ c_2Einteger_2Eint_ABS\ c_2Einteger_2Etint_0)$.

Definition 19 We define $c_2Einteger_2Etint_1$ to be $(ap\ (ap\ (c_2Epair_2E ty_2Enum_2Enum ty_2Enum ty_2Enum)))$

Definition 20 We define $c_2Einteger_2Etint_1$ to be $(ap\ c_2Einteger_2Eint_ABS\ c_2Einteger_2Etint_1)$.

Definition 21 We define $c_2Equotient_2EEQUIV$ to be $\lambda A_27a : \iota. \lambda V0E \in ((2^{A_27a})^{A_27a}).(ap\ (c_2Ebool_2EEQUIV\ A_27a))$

Definition 22 We define $c_2Equotient_2EQUOTIENT$ to be $\lambda A_27a : \iota. \lambda A_27b : \iota. \lambda V0R \in ((2^{A_27a})^{A_27a}).(ap\ (c_2Equotient_2EQUOTIENT\ A_27a\ A_27b))$

Assume the following.

$$\forall A_27a. nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a. (\forall V1y \in A_27a. ((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \quad (13)$$

Assume the following.

$$\begin{aligned} & (\forall V0p \in (ty_2Epair_2Eprod ty_2Enum_2Enum ty_2Enum_2Enum)). \\ & (\forall V1q \in (ty_2Epair_2Eprod ty_2Enum_2Enum ty_2Enum_2Enum)). \\ & ((p\ (ap\ (ap\ c_2Einteger_2Etint_eq\ V0p)\ V1q)) \Leftrightarrow ((ap\ c_2Einteger_2Etint_eq\ V0p) = (ap\ c_2Einteger_2Etint_eq\ V1q)))) \end{aligned} \quad (14)$$

Assume the following.

$$(\neg(p\ (ap\ (ap\ c_2Einteger_2Etint_eq\ c_2Einteger_2Etint_1)\ c_2Einteger_2Etint_0)))) \quad (15)$$

Assume the following.

$$\begin{aligned} & (p\ (ap\ (ap\ (ap\ (c_2Equotient_2EQUOTIENT\ (ty_2Epair_2Eprod ty_2Enum_2Enum ty_2Enum_2Enum ty_2Enum_2Enum)\ ty_2Einteger_2Eint)\ c_2Einteger_2Etint_eq) \\ & \quad c_2Einteger_2Eint_ABS)\ c_2Einteger_2Eint_REP)) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall A_27a. nonempty\ A_27a \Rightarrow (\forall V0R \in ((2^{A_27a})^{A_27a}). \\ & \quad ((\forall V1x \in A_27a. (\forall V2y \in A_27a. ((p\ (ap\ (ap\ V0R\ V1x)\ V2y)) \Leftrightarrow \\ & \quad ((ap\ V0R\ V1x) = (ap\ V0R\ V2y)))))) \Leftrightarrow ((\forall V3x \in A_27a. (p\ (ap\ (ap\ V0R\ V3x)\ V3x))) \wedge \\ & \quad ((\forall V4x \in A_27a. (\forall V5y \in A_27a. ((p\ (ap\ (ap\ V0R\ V4x)\ V5y)) \Rightarrow (p\ (ap\ (ap\ V0R\ V5y)\ V4x)))))) \wedge \\ & \quad ((\forall V7y \in A_27a. (\forall V8z \in A_27a. (((p\ (ap\ (ap\ V0R\ V6x)\ V7y)) \wedge \\ & \quad (p\ (ap\ (ap\ V0R\ V7y)\ V8z)))) \Rightarrow (p\ (ap\ (ap\ V0R\ V6x)\ V8z)))))))))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall A_27a. nonempty\ A_27a \Rightarrow \forall A_27b. nonempty\ A_27b \Rightarrow \\ & \quad (\forall V0R \in ((2^{A_27a})^{A_27a}). (\forall V1abs \in (A_27b)^{A_27a}). \\ & \quad (\forall V2rep \in (A_27a)^{A_27b}). ((p\ (ap\ (ap\ (ap\ c_2Equotient_2EQUOTIENT\ A_27a\ A_27b)\ V0R)\ V1abs)\ V2rep)) \Rightarrow (\forall V3x \in A_27b. (\forall V4y \in A_27b. ((V3x = V4y) \Leftrightarrow (p\ (ap\ (ap\ V0R\ (ap\ V2rep\ V3x))\ (ap\ V2rep\ V4y)))))))))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned}
& \forall A_{.27a}.nonempty A_{.27a} \Rightarrow \forall A_{.27b}.nonempty A_{.27b} \Rightarrow \\
& \quad \forall V0R \in ((2^{A_{.27a}})^{A_{.27a}}).(\forall V1abs \in (A_{.27b})^{A_{.27a}}). \\
& \quad (\forall V2rep \in (A_{.27a})^{A_{.27b}}).((p (ap (ap (ap (c_{.2Equotient_2EQOUTIENT} \\
& \quad A_{.27a} A_{.27b}) V0R) V1abs) V2rep)) \Rightarrow (\forall V3x1 \in A_{.27a}.(\forall V4x2 \in \\
& \quad A_{.27a}.(\forall V5y1 \in A_{.27a}.(\forall V6y2 \in A_{.27a}.(((p (ap (ap V0R \\
& \quad V3x1) V4x2)) \wedge (p (ap (ap V0R V5y1) V6y2))) \Rightarrow ((p (ap (ap V0R V3x1) V5y1) \Leftrightarrow \\
& \quad (p (ap (ap V0R V4x2) V6y2))))))))))) \\
\end{aligned} \tag{19}$$

Assume the following.

$$\begin{aligned}
& \forall A_{.27a}.nonempty A_{.27a} \Rightarrow \forall A_{.27b}.nonempty A_{.27b} \Rightarrow \\
& \quad \forall V0REL \in ((2^{A_{.27a}})^{A_{.27a}}).(\forall V1abs \in (A_{.27b})^{A_{.27a}}). \\
& \quad (\forall V2rep \in (A_{.27a})^{A_{.27b}}).((p (ap (ap (ap (c_{.2Equotient_2EQOUTIENT} \\
& \quad A_{.27a} A_{.27b}) V0REL) V1abs) V2rep)) \Rightarrow (\forall V3x1 \in A_{.27a}.(\forall V4x2 \in \\
& \quad A_{.27a}.((p (ap (ap V0REL V3x1) V4x2)) \Rightarrow (p (ap (ap V0REL V3x1) (ap V2rep \\
& \quad (ap V1abs V4x2))))))))))) \\
\end{aligned} \tag{20}$$

Theorem 1 ($\neg(c_{.2Einteger_2Eint_1} = c_{.2Einteger_2Eint_0})$).