

thm_2Eiterate_2EFINREC_FUN (TMFe- QkqY5Yg3T85z4SUxMk9Ka2N1eRTnRbP)

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Definition 1 We define `c_2Emin_2E_3D` to be $\lambda A. \lambda x \in A. \lambda y \in A. \text{inj_o } (x = y)$ of type $\iota \Rightarrow \iota$.

Definition 2 We define `c_2Ebool_2ET` to be $(\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^2))) (\lambda V 0x \in 2.V 0x)) (\lambda V 1x \in 2.V 1x)$

Let `ty_2Enum_2Enum` : ι be given. Assume the following.

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

Let `c_2Eiterate_2EFINREC` : $\iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a. \text{nonempty } A_27a \Rightarrow \forall A_27b. \text{nonempty } A_27b \Rightarrow \text{c_2Eiterate_2EFINREC } A_27a \ A_27b \in (((((2^{\text{ty_2Enum_2Enum}})^{A_27b})^{(2^{A-27a})})^{A_27b})^{((A_27b^{A-27b})^{A-27a})}) \tag{2}$$

Definition 3 We define `c_2Emin_2E_40` to be $\lambda A. \lambda P \in 2^A. \text{if } (\exists x \in A. p (\text{ap } P \ x)) \text{ then } (\text{the } (\lambda x. x \in A \wedge p \ x))$ of type $\iota \Rightarrow \iota$.

Definition 4 We define `c_2Ebool_2E_3F` to be $\lambda A_27a : \iota. (\lambda V 0P \in (2^{A-27a}). (\text{ap } V 0P (\text{ap } (\text{c_2Emin_2E_40 } A_27a \ P))))$

Let `c_2Enum_2EREP_num` : ι be given. Assume the following.

$$\text{c_2Enum_2EREP_num} \in (\text{omega}^{\text{ty_2Enum_2Enum}}) \tag{3}$$

Let `c_2Enum_2ESUC_REP` : ι be given. Assume the following.

$$\text{c_2Enum_2ESUC_REP} \in (\text{omega}^{\text{omega}}) \tag{4}$$

Let `c_2Enum_2EABS_num` : ι be given. Assume the following.

$$\text{c_2Enum_2EABS_num} \in (\text{ty_2Enum_2Enum}^{\text{omega}}) \tag{5}$$

Definition 5 We define `c_2Ebool_2E_21` to be $\lambda A_27a : \iota. (\lambda V 0P \in (2^{A-27a}). (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a}) \ P))))$

Definition 6 We define `c_2Enum_2ESUC` to be $\lambda V 0m \in \text{ty_2Enum_2Enum}. (\text{ap } \text{c_2Enum_2EABS_num } m)$

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

$$c_2Enum_2EZERO_REP \in \omega \tag{6}$$

Definition 7 We define c_2Enum_2E0 to be $(ap\ c_2Enum_2EABS_num\ c_2Enum_2EZERO_REP)$.

Definition 8 We define c_2Ebool_2EIN to be $\lambda A_27a : \iota. (\lambda V0x \in A_27a. (\lambda V1f \in (2^{A_27a}). (ap\ V1f\ V0x)))$

Definition 9 We define c_2Ebool_2EF to be $(ap\ (c_2Ebool_2E_21\ 2)\ (\lambda V0t \in 2.V0t))$.

Definition 10 We define $c_2Epred_set_2EEMPTY$ to be $\lambda A_27a : \iota. (\lambda V0x \in A_27a. c_2Ebool_2EF)$.

Definition 11 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 12 We define $c_2Ebool_2E_5C_2F$ to be $(\lambda V0t1 \in 2. (\lambda V1t2 \in 2. (ap\ (c_2Ebool_2E_21\ 2)\ (\lambda V2t \in 2. V2t))))$

Definition 13 We define $c_2Ebool_2E_2F_5C$ to be $(\lambda V0t1 \in 2. (\lambda V1t2 \in 2. (ap\ (c_2Ebool_2E_21\ 2)\ (\lambda V2t \in 2. V2t))))$

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

$$\forall A0.nonempty\ A0 \Rightarrow \forall A1.nonempty\ A1 \Rightarrow nonempty\ (ty_2Epair_2Eprod\ A0\ A1) \tag{7}$$

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

$$\forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Epair_2EABS_prod\ A_27a\ A_27b \in ((ty_2Epair_2Eprod\ A_27a\ A_27b)^{(2^{A_27b})^{A_27a}}) \tag{8}$$

Definition 14 We define $c_2Epair_2E_2C$ to be $\lambda A_27a : \iota. \lambda A_27b : \iota. \lambda V0x \in A_27a. \lambda V1y \in A_27b. (ap\ (c_2Epair_2EABS_prod\ A_27a\ A_27b)\ V0x\ V1y)$

Let $c_2Epred_set_2EGSPEC : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Epred_set_2EGSPEC\ A_27a\ A_27b \in ((2^{A_27a})^{(ty_2Epair_2Eprod\ A_27a\ 2)^{A_27b}}) \tag{9}$$

Definition 15 We define $c_2Epred_set_2EINSERT$ to be $\lambda A_27a : \iota. \lambda V0x \in A_27a. \lambda V1s \in (2^{A_27a}). (ap\ (c_2Epred_set_2EGSPEC\ A_27a\ A_27a)\ V0x\ V1s)$

Definition 16 We define $c_2Ebool_2E_7E$ to be $(\lambda V0t \in 2. (ap\ (ap\ c_2Emin_2E_3D_3D_3E\ V0t)\ c_2Ebool_2EF))$

Definition 17 We define $c_2Epred_set_2EDIFF$ to be $\lambda A_27a : \iota. \lambda V0s \in (2^{A_27a}). \lambda V1t \in (2^{A_27a}). (ap\ (c_2Epred_set_2EGSPEC\ A_27a\ A_27a)\ V0s\ V1t)$

Definition 18 We define $c_2Epred_set_2EDELETE$ to be $\lambda A_27a : \iota. \lambda V0s \in (2^{A_27a}). \lambda V1x \in A_27a. (ap\ (c_2Epred_set_2EGSPEC\ A_27a\ A_27a)\ V0s\ V1x)$

Definition 19 We define $c_2Epred_set_2EFINITE$ to be $\lambda A_27a : \iota. \lambda V0s \in (2^{A_27a}). (ap\ (c_2Ebool_2E_21\ 2)\ V0s)$

Assume the following.

$$True \quad (10)$$

Assume the following.

$$(\forall V0t1 \in 2. (\forall V1t2 \in 2. (((p V0t1) \Rightarrow (p V1t2)) \Rightarrow (((p V1t2) \Rightarrow (p V0t1)) \Rightarrow ((p V0t1) \Leftrightarrow (p V1t2)))))) \quad (11)$$

Assume the following.

$$(\forall V0t \in 2. (False \Rightarrow (p V0t))) \quad (12)$$

Assume the following.

$$(\forall V0t \in 2. (((True \wedge (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \wedge True) \Leftrightarrow (p V0t)) \wedge (((False \wedge (p V0t)) \Leftrightarrow False) \wedge (((p V0t) \wedge False) \Leftrightarrow False) \wedge (((p V0t) \wedge (p V0t)) \Leftrightarrow (p V0t)))))) \quad (13)$$

Assume the following.

$$(\forall V0t \in 2. (((True \Rightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Rightarrow True) \Leftrightarrow True) \wedge (((False \Rightarrow (p V0t)) \Leftrightarrow True) \wedge (((p V0t) \Rightarrow (p V0t)) \Leftrightarrow True) \wedge ((p V0t) \Rightarrow False) \Leftrightarrow (\neg(p V0t)))))) \quad (14)$$

Assume the following.

$$((\forall V0t \in 2. ((\neg(\neg(p V0t))) \Leftrightarrow (p V0t))) \wedge ((\neg True) \Leftrightarrow False) \wedge ((\neg False) \Leftrightarrow True)) \quad (15)$$

Assume the following.

$$\forall A_27a.nonempty \ A_27a \Rightarrow (\forall V0x \in A_27a. ((V0x = V0x) \Leftrightarrow True)) \quad (16)$$

Assume the following.

$$\forall A_27a.nonempty \ A_27a \Rightarrow (\forall V0x \in A_27a. (\forall V1y \in A_27a. ((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \quad (17)$$

Assume the following.

$$(\forall V0t \in 2. (((True \Leftrightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Leftrightarrow True) \Leftrightarrow (p V0t)) \wedge (((False \Leftrightarrow (p V0t)) \Leftrightarrow (\neg(p V0t))) \wedge (((p V0t) \Leftrightarrow False) \Leftrightarrow (\neg(p V0t)))))) \quad (18)$$

Assume the following.

$$\forall A_27a.nonempty \ A_27a \Rightarrow (\forall V0Q \in 2. (\forall V1P \in (2^{A_27a}). ((\forall V2x \in A_27a. ((p (ap V1P V2x)) \vee (p V0Q))) \Leftrightarrow ((\forall V3x \in A_27a. (p (ap V1P V3x)) \vee (p V0Q)))))) \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0P \in (2^{A_27a}). (\forall V1Q \in \\ & 2. ((\forall V2x \in A_27a. ((p\ (ap\ V0P\ V2x)) \Rightarrow (p\ V1Q))) \Leftrightarrow ((\exists V3x \in \\ & A_27a. (p\ (ap\ V0P\ V3x))) \Rightarrow (p\ V1Q)))))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & (\forall V0f \in ((A_27b^{A_27b})^{A_27a}). (\forall V1b \in A_27b. (\forall V2s \in \\ & (2^{A_27a}). (\forall V3a \in A_27b. ((p\ (ap\ (ap\ (ap\ (ap\ (ap\ (c_2Eiterate_2EFINREC \\ & A_27a\ A_27b)\ V0f)\ V1b)\ V2s)\ V3a)\ c_2Enum_2E0)) \Leftrightarrow ((V2s = (c_2Epred_set_2EEMPTY \\ & A_27a)) \wedge (V3a = V1b)))))) \wedge (\forall V4f \in ((A_27b^{A_27b})^{A_27a}). \\ & (\forall V5b \in A_27b. (\forall V6s \in (2^{A_27a}). (\forall V7a \in A_27b. \\ & (\forall V8n \in ty_2Enum_2Enum. ((p\ (ap\ (ap\ (ap\ (ap\ (ap\ (c_2Eiterate_2EFINREC \\ & A_27a\ A_27b)\ V4f)\ V5b)\ V6s)\ V7a)\ (ap\ c_2Enum_2ESUC\ V8n))) \Leftrightarrow (\exists V9x \in \\ & A_27a. (\exists V10c \in A_27b. ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V9x)\ \\ & V6s)) \wedge ((p\ (ap\ (ap\ (ap\ (ap\ (ap\ (c_2Eiterate_2EFINREC\ A_27a\ A_27b)\ \\ & V4f)\ V5b)\ (ap\ (ap\ (c_2Epred_set_2EDELETE\ A_27a)\ V6s)\ V9x))\ V10c)\ \\ & V8n)) \wedge (V7a = (ap\ (ap\ V4f\ V9x)\ V10c))))))))))))) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \forall V0f \in ((A_27b^{A_27b})^{A_27a}). (\forall V1b \in A_27b. ((\forall V2x \in \\ & A_27a. (\forall V3y \in A_27a. (\forall V4s \in A_27b. ((\neg(V2x = V3y)) \Rightarrow \\ & ((ap\ (ap\ V0f\ V2x)\ (ap\ (ap\ V0f\ V3y)\ V4s)) = (ap\ (ap\ V0f\ V3y)\ (ap\ (ap\ V0f \\ & V2x)\ V4s)))))) \Rightarrow (\forall V5n \in ty_2Enum_2Enum. (\forall V6s \in (\\ & 2^{A_27a}). (\forall V7z \in A_27b. ((p\ (ap\ (ap\ (ap\ (ap\ (ap\ (c_2Eiterate_2EFINREC \\ & A_27a\ A_27b)\ V0f)\ V1b)\ V6s)\ V7z)\ (ap\ c_2Enum_2ESUC\ V5n))) \Rightarrow (\forall V8x \in \\ & A_27a. ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V8x)\ V6s)) \Rightarrow (\exists V9w \in \\ & A_27b. ((p\ (ap\ (ap\ (ap\ (ap\ (ap\ (c_2Eiterate_2EFINREC\ A_27a\ A_27b)\ \\ & V0f)\ V1b)\ (ap\ (ap\ (c_2Epred_set_2EDELETE\ A_27a)\ V6s)\ V8x))\ V9w)\ \\ & V5n)) \wedge (V7z = (ap\ (ap\ V0f\ V8x)\ V9w))))))))))))) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \forall V0f \in ((A_27b^{A_27b})^{A_27a}). (\forall V1b \in A_27b. ((\forall V2x \in \\ & A_27a. (\forall V3y \in A_27a. (\forall V4s \in A_27b. ((\neg(V2x = V3y)) \Rightarrow \\ & ((ap\ (ap\ V0f\ V2x)\ (ap\ (ap\ V0f\ V3y)\ V4s)) = (ap\ (ap\ V0f\ V3y)\ (ap\ (ap\ V0f \\ & V2x)\ V4s)))))) \Rightarrow (\forall V5n1 \in ty_2Enum_2Enum. (\forall V6n2 \in \\ & ty_2Enum_2Enum. (\forall V7s \in (2^{A_27a}). (\forall V8a1 \in A_27b. \\ & (\forall V9a2 \in A_27b. ((p\ (ap\ (ap\ (ap\ (ap\ (ap\ (c_2Eiterate_2EFINREC \\ & A_27a\ A_27b)\ V0f)\ V1b)\ V7s)\ V8a1)\ V5n1)) \wedge (p\ (ap\ (ap\ (ap\ (ap\ (ap\ (c_2Eiterate_2EFINREC \\ & A_27a\ A_27b)\ V0f)\ V1b)\ V7s)\ V9a2)\ V6n2))) \Rightarrow ((V8a1 = V9a2) \wedge (V5n1 = \\ & V6n2))))))))))))) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \quad \forall V0f \in ((A_27b^{A_27b})^{A_27a}). (\forall V1b \in A_27b. (\forall V2s \in \\ & \quad (2^{A_27a}). ((p\ (ap\ (c_2Epred_set_2EFINITE\ A_27a)\ V2s)) \Rightarrow (\exists V3a \in \\ & \quad A_27b. (\exists V4n \in ty_2Enum_2Enum. (p\ (ap\ (ap\ (ap\ (ap\ (ap\ (c_2Eiterate_2EFINREC \\ & \quad A_27a\ A_27b)\ V0f)\ V1b)\ V2s)\ V3a)\ V4n))))))))) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow \forall A_27c. \\ & \quad nonempty\ A_27c \Rightarrow (\forall V0P \in (2^{A_27a}). (\forall V1R \in (((2^{A_27c})^{A_27b})^{A_27a}). \\ & \quad ((\forall V2s \in A_27a. ((p\ (ap\ V0P\ V2s)) \Rightarrow (\exists V3a \in A_27b. (\exists V4n \in \\ & \quad A_27c. (p\ (ap\ (ap\ (ap\ V1R\ V2s)\ V3a)\ V4n)))))) \wedge (\forall V5n1 \in A_27c. \\ & \quad (\forall V6n2 \in A_27c. (\forall V7s \in A_27a. (\forall V8a1 \in A_27b. \\ & \quad (\forall V9a2 \in A_27b. (((p\ (ap\ (ap\ (ap\ V1R\ V7s)\ V8a1)\ V5n1)) \wedge (p\ (ap\ \\ & \quad (ap\ (ap\ V1R\ V7s)\ V9a2)\ V6n2))) \Rightarrow ((V8a1 = V9a2) \wedge (V5n1 = V6n2))))))))) \Rightarrow \\ & \quad (\exists V10f \in (A_27b^{A_27a}). (\forall V11s \in A_27a. (\forall V12a \in \\ & \quad A_27b. ((p\ (ap\ V0P\ V11s)) \Rightarrow ((\exists V13n \in A_27c. (p\ (ap\ (ap\ (ap\ V1R \\ & \quad V11s)\ V12a)\ V13n))) \Leftrightarrow ((ap\ V10f\ V11s) = V12a))))))))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} & (\forall V0P \in (2^{ty_2Enum_2Enum}). (((p\ (ap\ V0P\ c_2Enum_2E0)) \wedge \\ & (\forall V1n \in ty_2Enum_2Enum. ((p\ (ap\ V0P\ V1n)) \Rightarrow (p\ (ap\ V0P\ (ap\ c_2Enum_2ESUC \\ & \quad V1n)))))) \Rightarrow (\forall V2n \in ty_2Enum_2Enum. (p\ (ap\ V0P\ V2n)))) \end{aligned} \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a. (\neg (p\ (ap\ (ap \\ & \quad (c_2Ebool_2EIN\ A_27a)\ V0x)\ (c_2Epred_set_2EEMPTY\ A_27a)))) \end{aligned} \quad (27)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow (p\ (ap\ (c_2Epred_set_2EFINITE \\ & \quad A_27a)\ (c_2Epred_set_2EEMPTY\ A_27a))) \end{aligned} \quad (28)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a. (\forall V1s \in \\ & \quad (2^{A_27a}). ((p\ (ap\ (c_2Epred_set_2EFINITE\ A_27a)\ (ap\ (ap\ (c_2Epred_set_2EDELETE \\ & \quad A_27a)\ V1s)\ V0x))) \Leftrightarrow (p\ (ap\ (c_2Epred_set_2EFINITE\ A_27a)\ V1s)))) \end{aligned} \quad (29)$$

Assume the following.

$$(\forall V0t \in 2. ((\neg(\neg(p\ V0t))) \Leftrightarrow (p\ V0t))) \quad (30)$$

Assume the following.

$$(\forall V0A \in 2. ((p\ V0A) \Rightarrow ((\neg(p\ V0A)) \Rightarrow False))) \quad (31)$$

Assume the following.

$$(\forall V0A \in 2.(\forall V1B \in 2.(((\neg((p V0A) \vee (p V1B))) \Rightarrow False) \Leftrightarrow ((p V0A) \Rightarrow False) \Rightarrow ((\neg(p V1B)) \Rightarrow False)))) \quad (32)$$

Assume the following.

$$(\forall V0A \in 2.(\forall V1B \in 2.(((\neg((\neg(p V0A)) \vee (p V1B))) \Rightarrow False) \Leftrightarrow ((p V0A) \Rightarrow ((\neg(p V1B)) \Rightarrow False)))) \quad (33)$$

Assume the following.

$$(\forall V0A \in 2.(((\neg(p V0A)) \Rightarrow False) \Rightarrow (((p V0A) \Rightarrow False) \Rightarrow False))) \quad (34)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(\forall V2r \in 2.(((p V0p) \Leftrightarrow (p V1q) \Leftrightarrow (p V2r)) \Leftrightarrow (((p V0p) \vee ((p V1q) \vee (p V2r))) \wedge (((p V0p) \vee (\neg(p V2r))) \vee (\neg(p V1q)))) \wedge (((p V1q) \vee ((\neg(p V2r)) \vee (\neg(p V0p)))) \wedge ((p V2r) \vee ((\neg(p V1q)) \vee (\neg(p V0p)))))))))) \quad (35)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(\forall V2r \in 2.(((p V0p) \Leftrightarrow (p V1q) \vee (p V2r)) \Leftrightarrow (((p V0p) \vee (\neg(p V1q))) \wedge (((p V0p) \vee (\neg(p V2r))) \wedge ((p V1q) \vee ((p V2r) \vee (\neg(p V0p)))))))))) \quad (36)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(\forall V2r \in 2.(((p V0p) \Leftrightarrow (p V1q) \Rightarrow (p V2r)) \Leftrightarrow (((p V0p) \vee (p V1q)) \wedge (((p V0p) \vee (\neg(p V2r))) \wedge ((\neg(p V1q)) \vee ((p V2r) \vee (\neg(p V0p)))))))))) \quad (37)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(((p V0p) \Leftrightarrow (\neg(p V1q))) \Leftrightarrow (((p V0p) \vee (p V1q)) \wedge ((\neg(p V1q)) \vee (\neg(p V0p)))))) \quad (38)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(((\neg((p V0p) \Rightarrow (p V1q))) \Rightarrow (p V0p)))) \quad (39)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(((\neg((p V0p) \Rightarrow (p V1q))) \Rightarrow (\neg(p V1q)))))) \quad (40)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(((\neg((p V0p) \vee (p V1q))) \Rightarrow (\neg(p V0p)))))) \quad (41)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(((\neg((p V0p) \vee (p V1q))) \Rightarrow (\neg(p V1q)))))) \quad (42)$$

Assume the following.

$$(\forall V0p \in 2.(((\neg(\neg(p V0p))) \Rightarrow (p V0p)))) \quad (43)$$

Theorem 1

$$\begin{aligned} & \forall A_{.27a}.nonempty\ A_{.27a} \Rightarrow \forall A_{.27b}.nonempty\ A_{.27b} \Rightarrow (\\ & \quad \forall V0f \in ((A_{.27b}^{A_{.27b}})^{A_{.27a}}).(\forall V1b \in A_{.27b}.((\forall V2x \in \\ & \quad A_{.27a}.(\forall V3y \in A_{.27a}.(\forall V4s \in A_{.27b}.((\neg(V2x = V3y)) \Rightarrow \\ & ((ap\ (ap\ V0f\ V2x)\ (ap\ (ap\ V0f\ V3y)\ V4s)) = (ap\ (ap\ V0f\ V3y)\ (ap\ (ap\ V0f \\ & V2x)\ V4s)))))) \Rightarrow (\exists V5g \in (A_{.27b}^{(2^{A_{.27a}})}).(((ap\ V5g\ (c_2Epred_set_2EEMPTY \\ & A_{.27a})) = V1b) \wedge (\forall V6s \in (2^{A_{.27a}}).(\forall V7x \in A_{.27a}.((\\ & (p\ (ap\ (c_2Epred_set_2EFINITE\ A_{.27a})\ V6s)) \wedge (p\ (ap\ (ap\ (c_2Ebool_2EIN \\ & A_{.27a})\ V7x)\ V6s))) \Rightarrow ((ap\ V5g\ V6s) = (ap\ (ap\ V0f\ V7x)\ (ap\ V5g\ (ap\ (ap\ (\\ & c_2Epred_set_2EDELETE\ A_{.27a})\ V6s)\ V7x)))))))))) \end{aligned}$$