

thm_2Ebag_2EBAG_INFINITE_BAG_IMAGE
 (TMXz-
 zQX73xfW1THGZbtVY5cSRH2mEZpHMgV)

October 26, 2020

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

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

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 $\lambda P \in 2. \lambda Q \in 2. inj_o (p \ P \Rightarrow p \ Q)$ of type ι .

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

Definition 7 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 $c_2Enum_2EREP_num : \iota$ be given. Assume the following.

$$c_2Enum_2EREP_num \in (\omega^{ty_2Enum_2Enum}) \quad (2)$$

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

$$c_2Enum_2ESUC_REP \in (\omega^{\omega}) \quad (3)$$

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

$$c_2Enum_2EABS_num \in (ty_2Enum_2Enum^{\omega}) \quad (4)$$

Definition 8 We define c_2Enum_2ESUC to be $\lambda V0m \in ty_2Enum_2Enum.(ap\ c_2Enum_2EABS_num\ ($

Definition 9 We define c_2 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 10 We define $c_{_2Ebool_2E_3F}$ to be $\lambda A.\lambda 27a : \iota.(\lambda V0P \in (2^{A-27a}).(ap\; V0P\; (ap\; (c_{_2Emin_2E_40}$

Definition 11 We define $c_2Eprim_rec_2E_3C$ to be $\lambda V0m \in ty_2Enum_2Enum. \lambda V1n \in ty_2Enum_2Enum.$

Definition 12 We define $c_2Earthmetic_2E_3E$ to be $\lambda V0m \in ty_2Enum_2Enum. \lambda V1n \in ty_2Enum_2Enum.$

Definition 13 We define $c_{\text{c_Ebool_2E_5C_2F}}$ to be $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_{\text{c_Ebool_2E_21}} 2)) (\lambda V2t \in$

Definition 14 We define c_2Earthmetic_2E_3E_3D to be $\lambda V0m \in ty_2Enum_2Enum.\lambda V1n \in ty_2Enum_2Enum.$

Definition 15 We define $c_2EBag_2EBAG_INN$ to be $\lambda A.\lambda 27a : \iota.\lambda V0e \in A.27a.\lambda V1n \in ty_2Enum_2Enum$

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

$$c_2Enum_2EZERO_REP \in \omega$$

define c_2Enum_2E0 to be (ap c_2Enum_2EABS_num c_2E

Definition 17 We define `c_2Earthmetic_2EZERO` to be `c_2Enum_2E0`.

Let $c_2E\arithmetic{2}E\arithmetic{2}B : \iota$ be given. Assume the following.

$c \in \text{arithmetic}$ $\in ((ty \in \text{enum} \in \text{enum}^{\text{ty}} \in \text{enum_enum})$

(6)

Definition 19. We define c 2Earthmetic 2ENUMERAL to be $\lambda V0x \in t_2. 2Enum\ 2Enum\ V0x$

Definition 39. We define a 2Ebool-2ECOND to be a 4-27c s.t. $(\forall V0t \in 2) (\forall V1t1 \in 4) 27c$ \sqsubseteq $(\forall V2t2 \in 4)$

Definition 21. We define a 2Ehor-2EPAC INSERT to be $\lambda A. \exists x. \psi \wedge Vx \in A \exists z \in \psi. Vx \in A \exists y. Vx \in Vy \wedge Vy \in b$

Definition 32. We define a 2Ebag-2EFAC-DELETE to be $\lambda \cdot 2^{27a} \times \lambda \cdot N(k) \in (\text{tw-2Ebags}, \text{2EFACs})^{A_{-27a}}$, where

D. *Situ*: 22. W. 1.6 m + 2E from the 2EK ($\lambda = 4.87^\circ$, $\delta = 4.87^\circ$) ($\Delta V_0 = \pm 4.87^\circ$, $\Delta V_1 = \pm 4.87^\circ$; $V_0 = 10^\circ$, $V_1 = 10^\circ$).

D. *Situ*: 24. Week 6, $\alpha = 2E\mu + 2EE\text{MBTY}$, $\text{RAC}(\alpha) = 4.87$, $\alpha = (2E\mu + 2E\text{MBTY})/2E = \text{MBTY}$

D. S. III - 25 W. 16 S. - 25E - GEDAG INT 1, 1, N 4.25 - NW 1/4 4.25 - NW 1/4 4E - 2E

D. S. VII - 26 W. 1.6 - 251 - CEDAC FILTER 4-1, λ 4.27 - NVOB = (O⁴, 37a), NH1 = (4, 2E)

$$\forall A \in \text{nonempty_A} \rightarrow \text{c_Log_LTDAG_CARD } A \sqsubseteq \text{c_Log_LTDAG_LTDAG} \quad (7)$$

Definition 27 We define $c_2Ebag_2EFINITE_BAG$ to be $\lambda A.27a : \iota.\lambda V0b \in (ty_2Enum_2Enum^A_{27a}).(ap$

Definition 28 We define $c_{\text{Ebool_ELET}}$ to be $\lambda A.27a : \iota.\lambda A.27b : \iota.(\lambda V0f \in (A.27b^A)^{27a}).(\lambda V1x \in A.27$

Definition 29 We define $c_{\text{EBAG_IMAGE}}$ to be $\lambda A.\lambda 27a : \iota.\lambda A.\lambda 27b : \iota.\lambda V0f \in (A_\underline{27a}^{A_\underline{27b}}).\lambda V1b$

Definition 30 We define $c_2Ecombin_2ES$ to be $\lambda A.27a : \iota.\lambda A.27b : \iota.\lambda A.27c : \iota.(\lambda V0f \in ((A.27c^{A.27b})^A)^{A.27c})$

Definition 31 We define $c_2Ecombin_2EI$ to be $\lambda A._27a : \iota.(ap\ (ap\ (c_2Ecombin_2ES\ A._27a\ (_27a^A)^{_27a})\ A)$

Definition 32 We define $\text{c_2Emarker_2EAbbrev}$ to be $\lambda V0x \in 2.V0x.$

Let $c_2Earithmetic_2EEVEN : \iota$ be given. Assume the following.

$$c_2Earithmetic_2EEVEN \in (2^{ty_2Enum_2Enum}) \quad (8)$$

Let $c_2Earithmetic_2EODD : \iota$ be given. Assume the following.

$$c_2Earithmetic_2EODD \in (2^{ty_2Enum_2Enum}) \quad (9)$$

Definition 33 We define $c_2Eprim_rec_2EPRE$ to be $\lambda V0m \in ty_2Enum_2Enum.(ap (ap (ap (ap (c_2EBool_2B$

Let c_2 be given. Assume the following.

$$c_2Earithmetic_2EE EXP \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum})^{ty_2Enum_2Enum} \quad (10)$$

Let $c_2Earithmetic_2E_2D : \iota$ be given. Assume the following.

$$c_2Earithmetic_2E_2D \in ((ty_2Enum_2Enum ty_2Enum_2Enum) ty_2Enum_2Enum) \\ (11)$$

Let $c_2Earithmetic_2E_2A : \iota$ be given. Assume the following.

$$c_2Earithmetic_2E_2A \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \\ (12)$$

Definition 34 We define $c_2Enumeral_2EiiSUC$ to be $\lambda V0n \in ty_2Enum_2Enum.(ap\ c_2Enum_2ESUC\ (ap$

Definition 35 We define $c_2E\text{numeral}_2EiZ$ to be $\lambda V0x \in ty_2Enum_2Enum. V0x$.

Definition 36 We define $c_2Earthmetic_2EBIT2$ to be $\lambda V0n \in ty_2Enum_2Enum.(ap (ap c_2Earthmetic$

Definition 37 We define $c_2Earthmet_2E_{3C_3D}$ to be $\lambda V0m \in ty_2Enum_2Enum.\lambda V1n \in ty_2Enum_2Enum.$

Assume the following.

($\forall V$) $m \in t$

$$(ap\ (ap\ e_{\text{Z2E}}[a\ v1m]e_{\text{Z2E}}[2B\ V0m])\ V1n) = (ap\ (ap\ e_{\text{Z2E}}[a\ v1m]e_{\text{Z2E}}[2B\ V1n])\ V0m))) \quad (13)$$

Assume the following.

$$\begin{aligned}
 & (\forall V0m \in ty_2Enum_2Enum. (\forall V1n \in ty_2Enum_2Enum. \\
 & \quad \forall V2p \in ty_2Enum_2Enum. ((ap (ap c_2Earithmetic_2E_2B V0m) \\
 & \quad (ap (ap c_2Earithmetic_2E_2B V1n) V2p)) = (ap (ap c_2Earithmetic_2E_2B \\
 & \quad (ap (ap c_2Earithmetic_2E_2B V0m) V1n)) V2p)))))) \\
 & \tag{14}
 \end{aligned}$$

Assume the following.

$$(\forall V0m \in ty_2Enum_2Enum. ((V0m = c_2Enum_2E0) \vee (\exists V1n \in ty_2Enum_2Enum. (V0m = (ap c_2Enum_2ESUC V1n))))) \tag{15}$$

Assume the following.

$$(\forall V0n \in ty_2Enum_2Enum. ((\neg(V0n = c_2Enum_2E0)) \Leftrightarrow (p (ap (ap c_2Eprim_rec_2E_3C c_2Enum_2E0) V0n)))) \tag{16}$$

Assume the following.

$$(\forall V0n \in ty_2Enum_2Enum. (p (ap (ap c_2Earithmetic_2E_3C_3D c_2Enum_2E0) V0n))) \tag{17}$$

Assume the following.

$$\begin{aligned}
 & (\forall V0m \in ty_2Enum_2Enum. (\forall V1n \in ty_2Enum_2Enum. \\
 & \quad (\neg(p (ap (ap c_2Eprim_rec_2E_3C V0m) V1n)) \Leftrightarrow (p (ap (ap c_2Earithmetic_2E_3C_3D \\
 & \quad V1n) V0m))))) \\
 & \tag{18}
 \end{aligned}$$

Assume the following.

$$\begin{aligned}
 & (\forall V0m \in ty_2Enum_2Enum. (\forall V1n \in ty_2Enum_2Enum. \\
 & \quad ((ap (ap c_2Earithmetic_2E_2A c_2Enum_2E0) V0m) = c_2Enum_2E0) \wedge \\
 & \quad (((ap (ap c_2Earithmetic_2E_2A V0m) c_2Enum_2E0) = c_2Enum_2E0) \wedge \\
 & \quad (((ap (ap c_2Earithmetic_2E_2A (ap c_2Earithmetic_2ENUMERAL \\
 & \quad (ap c_2Earithmetic_2EBIT1 c_2Earithmetic_2EZERO))) V0m) = V0m) \wedge \\
 & \quad (((ap (ap c_2Earithmetic_2E_2A V0m) (ap c_2Earithmetic_2ENUMERAL \\
 & \quad (ap c_2Earithmetic_2EBIT1 c_2Earithmetic_2EZERO))) = V0m) \wedge \\
 & \quad ((ap (ap c_2Earithmetic_2E_2A (ap c_2Enum_2ESUC V0m)) V1n) = (ap \\
 & \quad (ap c_2Earithmetic_2E_2B (ap (ap c_2Earithmetic_2E_2A V0m) V1n)) \\
 & \quad V1n)) \wedge ((ap (ap c_2Earithmetic_2E_2A V0m) (ap c_2Enum_2ESUC V1n)) = \\
 & \quad (ap (ap c_2Earithmetic_2E_2B V0m) (ap (ap c_2Earithmetic_2E_2A \\
 & \quad V0m) V1n))))))) \\
 & \tag{19}
 \end{aligned}$$

Assume the following.

$$\begin{aligned}
 & (\forall V0m \in ty_2Enum_2Enum. (\forall V1n \in ty_2Enum_2Enum. \\
 & \quad \forall V2p \in ty_2Enum_2Enum. (((p (ap (ap c_2Earithmetic_2E_3C_3D \\
 & \quad V0m) V1n)) \wedge (p (ap (ap c_2Earithmetic_2E_3C_3D V1n) V2p))) \Rightarrow (p (\\
 & \quad ap (ap c_2Earithmetic_2E_3C_3D V0m) V2p)))))) \\
 & \tag{20}
 \end{aligned}$$

Assume the following.

$$\begin{aligned} & (\forall V0n \in ty_2Enum_2Enum. (\forall V1m \in ty_2Enum_2Enum. (\\ & (p (ap (ap c_2Earithmetic_2E_3E_3D V0n) V1m)) \Leftrightarrow (p (ap (ap c_2Earithmetic_2E_3C_3D \\ & V1m) V0n)))))) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} & (\forall V0m \in ty_2Enum_2Enum. (\forall V1n \in ty_2Enum_2Enum. (\\ & \forall V2p \in ty_2Enum_2Enum. ((p (ap (ap c_2Earithmetic_2E_3C_3D \\ & (ap (ap c_2Earithmetic_2E_2B V0m) V1n)) (ap (ap c_2Earithmetic_2E_2B \\ & V0m) V2p))) \Leftrightarrow (p (ap (ap c_2Earithmetic_2E_3C_3D V1n) V2p)))))) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & (\forall V0m \in ty_2Enum_2Enum. (\forall V1n \in ty_2Enum_2Enum. (\\ & (\neg(p (ap (ap c_2Earithmetic_2E_3C_3D V0m) V1n))) \Leftrightarrow (p (ap (ap c_2Earithmetic_2E_3C_3D \\ & (ap c_2Enum_2ESUC V1n)) V0m)))))) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & (\forall V0n \in ty_2Enum_2Enum. ((ap c_2Enum_2ESUC V0n) = (ap (ap \\ & c_2Earithmetic_2E_2B (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT1 \\ & c_2Earithmetic_2EZERO))) V0n))) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall A_27a. nonempty A_27a \Rightarrow (\forall V0b \in (ty_2Enum_2Enum^{A_27a}). \\ & (\forall V1e1 \in A_27a. (\forall V2e2 \in A_27a. ((p (ap (ap (c_2Ebag_2EBAG_IN \\ & A_27a) V1e1) (ap (ap (c_2Ebag_2EBAG_INSERT A_27a) V2e2) V0b))) \Leftrightarrow \\ & ((V1e1 = V2e2) \vee (p (ap (ap (c_2Ebag_2EBAG_IN A_27a) V1e1) V0b))))))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} & \forall A_27a. nonempty A_27a \Rightarrow (\forall V0b \in (ty_2Enum_2Enum^{A_27a}). \\ & (\forall V1e \in A_27a. ((p (ap (ap (c_2Ebag_2EBAG_IN A_27a) V1e) \\ & V0b)) \Rightarrow (\exists V2b_27 \in (ty_2Enum_2Enum^{A_27a}). (p (ap (ap (ap (\\ & c_2Ebag_2EBAG_DELETE A_27a) V0b) V1e) V2b_27))))))) \end{aligned} \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall A_27a. nonempty A_27a \Rightarrow ((p (ap (c_2Ebag_2EFINITE_BAG \\ & A_27a) (c_2Ebag_2EEMPTY_BAG A_27a))) \wedge (\forall V0e \in A_27a. (\\ & \forall V1b \in (ty_2Enum_2Enum^{A_27a}). ((p (ap (c_2Ebag_2EFINITE_BAG \\ & A_27a) (ap (ap (c_2Ebag_2EBAG_INSERT A_27a) V0e) V1b))) \Leftrightarrow (p (ap \\ & (c_2Ebag_2EFINITE_BAG A_27a) V1b))))))) \end{aligned} \quad (27)$$

Assume the following.

$$\begin{aligned} \forall A_{.27a}.nonempty\ A_{.27a} \Rightarrow & (((ap\ (c_{.2}Ebag_{.2}EBAG_{.2}CARD\ A_{.27a}) \\ & (c_{.2}Ebag_{.2}EEMPTY_{.2}BAG\ A_{.27a})) = c_{.2}Enum_{.2}E0) \wedge (\forall V0b \in (\\ & ty_{.2}Enum_{.2}Enum^{A_{.27a}}).((p\ (ap\ (c_{.2}Ebag_{.2}EFINITE_{.2}BAG\ A_{.27a}) \\ & V0b)) \Rightarrow (\forall V1e \in A_{.27a}.((ap\ (c_{.2}Ebag_{.2}EBAG_{.2}CARD\ A_{.27a}) \\ & ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}INSERT\ A_{.27a})\ V1e)\ V0b)) = (ap\ (ap\ c_{.2}Earithmetic_{.2}E_{.2}B \\ & (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}CARD\ A_{.27a})\ V0b))\ (ap\ c_{.2}Earithmetic_{.2}ENUMERAL \\ & (ap\ c_{.2}Earithmetic_{.2}EBIT1\ c_{.2}Earithmetic_{.2}EZERO))))))) \\ & (28) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall A_{.27a}.nonempty\ A_{.27a} \Rightarrow & (\forall V0b \in (ty_{.2}Enum_{.2}Enum^{A_{.27a}}). \\ & ((p\ (ap\ (c_{.2}Ebag_{.2}EFINITE_{.2}BAG\ A_{.27a})\ V0b)) \Rightarrow (\forall V1n \in ty_{.2}Enum_{.2}Enum. \\ & (((ap\ (c_{.2}Ebag_{.2}EBAG_{.2}CARD\ A_{.27a})\ V0b) = (ap\ c_{.2}Enum_{.2}ESUC\ V1n)) \Leftrightarrow \\ & (\exists V2b0 \in (ty_{.2}Enum_{.2}Enum^{A_{.27a}}).\exists V3e \in A_{.27a}.((\\ & V0b = (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}INSERT\ A_{.27a})\ V3e)\ V2b0)) \wedge ((ap\ (c_{.2}Ebag_{.2}EBAG_{.2}CARD \\ & A_{.27a})\ V2b0) = V1n))))))) \\ & (29) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall A_{.27a}.nonempty\ A_{.27a} \Rightarrow & (\forall V0P \in (2^{A_{.27a}}).(\forall V1e \in \\ & A_{.27a}.(\forall V2b \in (ty_{.2}Enum_{.2}Enum^{A_{.27a}}).((ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}FILTER \\ & A_{.27a})\ V0P)\ (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}INSERT\ A_{.27a})\ V1e)\ V2b)) = (\\ & ap\ (ap\ (c_{.2}Ebool_{.2}ECOND\ (ty_{.2}Enum_{.2}Enum^{A_{.27a}}))\ (ap\ V0P\ V1e)) \\ & (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}INSERT\ A_{.27a})\ V1e)\ (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}FILTER \\ & A_{.27a})\ V0P)\ V2b)))\ (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}FILTER\ A_{.27a})\ V0P)\ V2b))))))) \\ & (30) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall A_{.27a}.nonempty\ A_{.27a} \Rightarrow & (\forall V0P \in (2^{A_{.27a}}).(\forall V1b \in \\ & (ty_{.2}Enum_{.2}Enum^{A_{.27a}}).((p\ (ap\ (c_{.2}Ebag_{.2}EFINITE_{.2}BAG\ A_{.27a}) \\ & V1b)) \Rightarrow (p\ (ap\ (c_{.2}Ebag_{.2}EFINITE_{.2}BAG\ A_{.27a})\ (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}FILTER \\ & A_{.27a})\ V0P)\ V1b))))))) \\ & (31) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall A_{.27a}.nonempty\ A_{.27a} \Rightarrow & (\forall V0e \in A_{.27a}.(\forall V1P \in \\ & (2^{A_{.27a}}).(\forall V2b \in (ty_{.2}Enum_{.2}Enum^{A_{.27a}}).((p\ (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}IN \\ & A_{.27a})\ V0e)\ (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}FILTER\ A_{.27a})\ V1P)\ V2b))) \Leftrightarrow \\ & ((p\ (ap\ V1P\ V0e)) \wedge (p\ (ap\ (ap\ (c_{.2}Ebag_{.2}EBAG_{.2}IN\ A_{.27a})\ V0e)\ V2b))))))) \\ & (32) \end{aligned}$$

Assume the following.

$$True \quad (33)$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(((p\ V0t1) \Rightarrow (p\ V1t2)) \Rightarrow (((p \\ & V1t2) \Rightarrow (p\ V0t1)) \Rightarrow ((p\ V0t1) \Leftrightarrow (p\ V1t2)))))) \quad (34)$$

Assume the following.

$$(\forall V0t \in 2. (False \Rightarrow (p V0t))) \quad (35)$$

Assume the following.

$$(\forall V0t \in 2. ((p V0t) \vee (\neg(p V0t)))) \quad (36)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.\text{nonempty } A_27a \Rightarrow \forall A_27b.\text{nonempty } A_27b \Rightarrow \\ & \forall V0f \in (A_27b^{A_27a}). (\forall V1x \in A_27a. ((ap (ap (c_2Ebool_2ELET \\ & \quad A_27a A_27b) V0f) V1x) = (ap V0f V1x))) \end{aligned} \quad (37)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.\text{nonempty } A_27a \Rightarrow (\forall V0t \in 2. ((\forall V1x \in \\ & \quad A_27a. (p V0t)) \Leftrightarrow (p V0t))) \end{aligned} \quad (38)$$

Assume the following.

$$(\forall V0t \in 2. (((p V0t) \Rightarrow False) \Rightarrow (\neg(p V0t)))) \quad (39)$$

Assume the following.

$$(\forall V0t \in 2. ((\neg(p V0t)) \Rightarrow ((p V0t) \Rightarrow False))) \quad (40)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2. (((True \wedge (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \wedge True) \Leftrightarrow \\ & \quad (p V0t)) \wedge (((False \wedge (p V0t)) \Leftrightarrow False) \wedge (((p V0t) \wedge False) \Leftrightarrow False) \wedge \\ & \quad (((p V0t) \wedge (p V0t)) \Leftrightarrow (p V0t)))))) \end{aligned} \quad (41)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2. (((True \vee (p V0t)) \Leftrightarrow True) \wedge (((p V0t) \vee True) \Leftrightarrow True) \wedge \\ & \quad (((False \vee (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \vee False) \Leftrightarrow (p V0t)) \wedge (((p V0t) \vee \\ & \quad (p V0t)) \Leftrightarrow (p V0t)))))) \end{aligned} \quad (42)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2. (((True \Rightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Rightarrow True) \Leftrightarrow \\ & \quad True) \wedge (((False \Rightarrow (p V0t)) \Leftrightarrow False) \wedge (((p V0t) \Rightarrow (p V0t)) \Leftrightarrow True) \wedge \\ & \quad (((p V0t) \Rightarrow False) \Leftrightarrow (\neg(p V0t)))))) \end{aligned} \quad (43)$$

Assume the following.

$$\begin{aligned} & ((\forall V0t \in 2. ((\neg(\neg(p V0t)) \Leftrightarrow (p V0t)) \wedge (((\neg True) \Leftrightarrow False) \wedge \\ & \quad ((\neg False) \Leftrightarrow True)))) \end{aligned} \quad (44)$$

Assume the following.

$$\forall A_{\text{27a}}.\text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0x \in A_{\text{27a}}. ((V0x = V0x) \Leftrightarrow \text{True})) \quad (45)$$

Assume the following.

$$\forall A_{\text{27a}}.\text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0x \in A_{\text{27a}}. (\forall V1y \in A_{\text{27a}}. ((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \quad (46)$$

Assume the following.

$$(\forall V0t \in 2. (((\text{True} \Leftrightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Leftrightarrow \text{True}) \Leftrightarrow (p V0t)) \wedge (((\text{False} \Leftrightarrow (p V0t)) \Leftrightarrow (\neg(p V0t))) \wedge (((p V0t) \Leftrightarrow \text{False}) \Leftrightarrow (\neg(p V0t))))))) \quad (47)$$

Assume the following.

$$\forall A_{\text{27a}}.\text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0P \in (2^{A_{\text{27a}}}). ((\neg(\exists V1x \in A_{\text{27a}}. (p (ap V0P V1x)))) \Leftrightarrow (\forall V2x \in A_{\text{27a}}. (\neg(p (ap V0P V2x))))))) \quad (48)$$

Assume the following.

$$\forall A_{\text{27a}}.\text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0P \in (2^{A_{\text{27a}}}). (\forall V1Q \in 2. (((\forall V2x \in A_{\text{27a}}. (p (ap V0P V2x))) \wedge (p V1Q)) \Leftrightarrow (\forall V3x \in A_{\text{27a}}. ((p (ap V0P V3x)) \wedge (p V1Q)))))))) \quad (49)$$

Assume the following.

$$\forall A_{\text{27a}}.\text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0P \in 2. (\forall V1Q \in (2^{A_{\text{27a}}}). (((p V0P) \vee (\exists V2x \in A_{\text{27a}}. (p (ap V1Q V2x)))) \Leftrightarrow (\exists V3x \in A_{\text{27a}}. ((p V0P) \vee (p (ap V1Q V3x))))))) \quad (50)$$

Assume the following.

$$\forall A_{\text{27a}}.\text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0P \in (2^{A_{\text{27a}}}). (\forall V1Q \in 2. (((\exists V2x \in A_{\text{27a}}. ((p (ap V0P V2x)) \wedge (p V1Q))) \Leftrightarrow ((\exists V3x \in A_{\text{27a}}. (p (ap V0P V3x)) \wedge (p V1Q))))))) \quad (51)$$

Assume the following.

$$\forall A_{\text{27a}}.\text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0P \in 2. (\forall V1Q \in (2^{A_{\text{27a}}}). (((\exists V2x \in A_{\text{27a}}. ((p V0P) \wedge (p (ap V1Q V2x)))) \Leftrightarrow ((p V0P) \wedge (\exists V3x \in A_{\text{27a}}. (p (ap V1Q V3x))))))) \quad (52)$$

Assume the following.

$$\forall A_{\text{27a}}.\text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0Q \in 2. (\forall V1P \in (2^{A_{\text{27a}}}). (((\forall V2x \in A_{\text{27a}}. ((p (ap V1P V2x)) \vee (p V0Q))) \Leftrightarrow ((\forall V3x \in A_{\text{27a}}. (p (ap V1P V3x)) \vee (p V0Q))))))) \quad (53)$$

Assume the following.

$$\forall A_{\text{27a}}. \text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0P \in 2. (\forall V1Q \in 2^{A_{\text{27a}}}. ((\forall V2x \in A_{\text{27a}}. ((p V0P) \vee (p (ap V1Q V2x)))) \Leftrightarrow ((p V0P) \vee (\forall V3x \in A_{\text{27a}}. (p (ap V1Q V3x))))))) \quad (54)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (\forall V2C \in 2. (((p V0A) \vee (p V1B)) \vee (p V2C))) \Leftrightarrow (((p V0A) \vee (p V1B)) \vee (p V2C)))) \quad (55)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((p V0A) \vee (p V1B)) \Leftrightarrow ((p V1B) \vee (p V0A)))) \quad (56)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((\neg((p V0A) \wedge (p V1B))) \Leftrightarrow ((\neg(p V0A)) \vee (\neg(p V1B)))) \wedge ((\neg((p V0A) \vee (p V1B))) \Leftrightarrow ((\neg(p V0A)) \wedge (\neg(p V1B))))))) \quad (57)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((p V0A) \Rightarrow (p V1B)) \Leftrightarrow ((\neg(p V0A)) \vee (p V1B)))) \quad (58)$$

Assume the following.

$$(\forall V0t \in 2. (((p V0t) \Rightarrow \text{False}) \Leftrightarrow ((p V0t) \Leftrightarrow \text{False}))) \quad (59)$$

Assume the following.

$$(\forall V0t1 \in 2. (\forall V1t2 \in 2. (\forall V2t3 \in 2. (((p V0t1) \Rightarrow ((p V1t2) \Rightarrow (p V2t3))) \Leftrightarrow (((p V0t1) \wedge (p V1t2)) \Rightarrow (p V2t3)))))) \quad (60)$$

Assume the following.

$$(\forall V0x \in 2. (\forall V1x_{\text{27}} \in 2. (\forall V2y \in 2. (\forall V3y_{\text{27}} \in 2. (((p V0x) \Leftrightarrow (p V1x_{\text{27}})) \wedge ((p V1x_{\text{27}}) \Rightarrow ((p V2y) \Leftrightarrow (p V3y_{\text{27}})))) \Rightarrow (((p V0x) \Rightarrow (p V2y)) \Leftrightarrow ((p V1x_{\text{27}}) \Rightarrow (p V3y_{\text{27}}))))))) \quad (61)$$

Assume the following.

$$\begin{aligned} & \forall A_{\text{27a}}. \text{nonempty } A_{\text{27a}} \Rightarrow (\forall V0P \in 2. (\forall V1Q \in 2. \\ & (\forall V2x \in A_{\text{27a}}. (\forall V3x_{\text{27}} \in A_{\text{27a}}. (\forall V4y \in A_{\text{27a}}. \\ & (\forall V5y_{\text{27}} \in A_{\text{27a}}. (((p V0P) \Leftrightarrow (p V1Q)) \wedge (((p V1Q) \Rightarrow (V2x = V3x_{\text{27}})) \wedge \\ & ((\neg(p V1Q)) \Rightarrow (V4y = V5y_{\text{27}})))) \Rightarrow ((ap (ap (ap (\text{c_2Ebool_2ECOND } A_{\text{27a}}) \\ & V0P) V2x) V4y) = (ap (ap (ap (\text{c_2Ebool_2ECOND } A_{\text{27a}}) V1Q) V3x_{\text{27}}) \\ & V5y_{\text{27}})))))))))) \end{aligned} \quad (62)$$

Assume the following.

$$\begin{aligned} \forall A_{27a}.nonempty\ A_{27a} \Rightarrow & \forall A_{27b}.nonempty\ A_{27b} \Rightarrow (\\ & \forall V0P \in ((2^{A_{27b}})^{A_{27a}}).((\forall V1x \in A_{27a}.(\exists V2y \in \\ & A_{27b}.(p(ap(ap(V0P\ V1x)\ V2y)))) \Leftrightarrow (\exists V3f \in (A_{27b})^{A_{27a}}).(\ \\ & \forall V4x \in A_{27a}.(p(ap(ap(V0P\ V4x)\ (ap(V3f\ V4x))))))) \end{aligned} \quad (63)$$

Assume the following.

$$\begin{aligned} \forall A_{27a}.nonempty\ A_{27a} \Rightarrow & ((\forall V0t1 \in A_{27a}.(\forall V1t2 \in \\ & A_{27a}.((ap(ap(c_2Ebool_2ECOND\ A_{27a})\ c_2Ebool_2ET)\ V0t1) \\ & V1t2) = V0t1))) \wedge (\forall V2t1 \in A_{27a}.(\forall V3t2 \in A_{27a}.((ap \\ & (ap(c_2Ebool_2ECOND\ A_{27a})\ c_2Ebool_2EF)\ V2t1)\ V3t2) = V3t2))) \end{aligned} \quad (64)$$

Assume the following.

$$\forall A_{27a}.nonempty\ A_{27a} \Rightarrow (\forall V0x \in A_{27a}.((ap(c_2Ecombin_2EI \\ A_{27a})\ V0x) = V0x)) \quad (65)$$

Assume the following.

$((\forall V0n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2B c_2Enum_2E0) V0n) = V0n)) \wedge ((\forall V1n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2B V1n) c_2Enum_2E0) = V1n)) \wedge ((\forall V2n \in ty_2Enum_2Enum.(\forall V3m \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2B ap c_2Earithmetic_2ENUMERAL V2n)) (ap c_2Earithmetic_2ENUMERAL V3m)) = (ap c_2Earithmetic_2ENUMERAL (ap c_2Enum_2EiZ (ap (ap c_2Earithmetic_2E_2B V2n) V3m))))))) \wedge ((\forall V4n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2A c_2Enum_2E0) V4n) = c_2Enum_2E0)) \wedge ((\forall V5n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2A V5n) c_2Enum_2E0) = c_2Enum_2E0)) \wedge ((\forall V6n \in ty_2Enum_2Enum.((\forall V7m \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2A (ap c_2Earithmetic_2ENUMERAL V6n)) (ap c_2Earithmetic_2ENUMERAL V7m)) = (ap c_2Earithmetic_2ENUMERAL (ap (ap c_2Earithmetic_2E_2A V6n) V7m))))))) \wedge ((\forall V8n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2D c_2Enum_2E0) V8n) = c_2Enum_2E0)) \wedge ((\forall V9n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2D V9n) c_2Enum_2E0) = V9n)) \wedge ((\forall V10n \in ty_2Enum_2Enum.(\forall V11m \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2D (ap c_2Earithmetic_2ENUMERAL V10n)) (ap c_2Earithmetic_2ENUMERAL V11m)) = (ap c_2Earithmetic_2ENUMERAL (ap (ap c_2Earithmetic_2E_2D V10n) V11m))))))) \wedge ((\forall V12n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2EEEXP c_2Enum_2E0) (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT1 V12n))) = c_2Enum_2E0)) \wedge ((\forall V13n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2EEEXP c_2Enum_2E0) (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT2 V13n))) = c_2Enum_2E0)) \wedge ((\forall V14n \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2EEEXP V14n) c_2Enum_2E0) = (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT1 c_2Earithmetic_2EZERO))))))) \wedge ((\forall V15n \in ty_2Enum_2Enum.(\forall V16m \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2EEEXP (ap c_2Earithmetic_2ENUMERAL V15n)) (ap c_2Earithmetic_2ENUMERAL V16m)) = (ap c_2Earithmetic_2ENUMERAL (ap (ap c_2Earithmetic_2EEEXP V15n) V16m))))))) \wedge (((ap c_2Enum_2ESUC c_2Enum_2E0) = (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT1 c_2Earithmetic_2EZERO)))) \wedge ((\forall V17n \in ty_2Enum_2Enum.((ap c_2Enum_2ESUC (ap c_2Earithmetic_2ENUMERAL V17n)) = (ap c_2Earithmetic_2ENUMERAL (ap c_2Enum_2ESUC V17n))))))) \wedge (((ap c_2Eprim_rec_2EPRE c_2Enum_2E0) = c_2Enum_2E0) \wedge ((\forall V18n \in ty_2Enum_2Enum.((ap c_2Eprim_rec_2EPRE (ap c_2Earithmetic_2ENUMERAL V18n)) = (ap c_2Earithmetic_2ENUMERAL (ap c_2Eprim_rec_2EPRE V18n))))))) \wedge ((\forall V19n \in ty_2Enum_2Enum.(((ap c_2Earithmetic_2ENUMERAL V19n) = c_2Enum_2E0) \Leftrightarrow (V19n = c_2Earithmetic_2EZERO))) \wedge ((\forall V20n \in ty_2Enum_2Enum.((c_2Enum_2E0 = (ap c_2Earithmetic_2ENUMERAL V20n)) \Leftrightarrow (V20n = c_2Earithmetic_2EZERO))) \wedge ((\forall V21n \in ty_2Enum_2Enum.((\forall V22m \in ty_2Enum_2Enum.(((ap c_2Earithmetic_2ENUMERAL V21n) = (ap c_2Earithmetic_2ENUMERAL V22m)) \Leftrightarrow (V21n = V22m))))))) \wedge ((\forall V23n \in ty_2Enum_2Enum.((p (ap (ap c_2Eprim_rec_2E_3C c_2Enum_2E0) (ap c_2Earithmetic_2ENUMERAL V23n)) \Leftrightarrow False))) \wedge ((\forall V24n \in ty_2Enum_2Enum.((p (ap (ap c_2Eprim_rec_2E_3C c_2Enum_2E0) (ap c_2Earithmetic_2ENUMERAL V24n)) \Leftrightarrow (p (ap (ap c_2Eprim_rec_2E_3C c_2Earithmetic_2EZERO) V24n))))))) \wedge ((\forall V25n \in ty_2Enum_2Enum.(\forall V26m \in ty_2Enum_2Enum.((p (ap (ap c_2Eprim_rec_2E_3C c_2Enum_2E0) (ap c_2Earithmetic_2ENUMERAL V25n)) (ap c_2Earithmetic_2ENUMERAL V26m)) \Leftrightarrow (p (ap (ap c_2Eprim_rec_2E_3C c_2Enum_2E0) (ap c_2Earithmetic_2ENUMERAL V25n) V26m))))))) \wedge ((\forall V27n \in ty_2Enum_2Enum.((p (ap (ap c_2Earithmetic_2E_3E c_2Enum_2E0) V27n)) \Leftrightarrow False))) \wedge ((\forall V28n \in ty_2Enum_2Enum.((p (ap (ap c_2Earithmetic_2E_3E (ap c_2Earithmetic_2ENUMERAL V28n)) c_2Enum_2E0) \Leftrightarrow (p (ap (ap c_2Eprim_rec_2E_3C c_2Earithmetic_2EZERO) V28n))))))) \wedge ((\forall V29n \in ty_2Enum_2Enum.((\forall V30m \in ty_2Enum_2Enum.((p (ap (ap c_2Earithmetic_2E_3E c_2Enum_2E0) V29n)) (ap c_2Earithmetic_2ENUMERAL V30m)) \Leftrightarrow (p (ap (ap c_2Eprim_rec_2E_3C c_2Enum_2E0) V29n))))))) \wedge ((\forall V31n \in ty_2Enum_2Enum.((p (ap (ap c_2Earithmetic_2E_3D c_2Enum_2E0) V31n)) \Leftrightarrow True))) \wedge ((\forall V32n \in ty_2Enum_2Enum.((p (ap (ap c_2Earithmetic_2E_3C c_2Enum_2E0) V32n)) \Leftrightarrow False))) \wedge ((\forall V33n \in ty_2Enum_2Enum.((p (ap (ap c_2Earithmetic_2E_3D c_2Enum_2E0) V33n)) \Leftrightarrow True))) \wedge ((\forall V34n \in ty_2Enum_2Enum.((p (ap (ap c_2Earithmetic_2E_3D c_2Enum_2E0) V34n)) \Leftrightarrow False)))$

Assume the following.

Assume the following.

$$\begin{aligned}
& (\forall V0n \in ty_2Enum_2Enum. (\forall V1m \in ty_2Enum_2Enum. \\
& ((p (ap (ap c_2Earithmetic_2E_3C_3D c_2Earithmetic_2EZERO) V0n)) \Leftrightarrow \\
& True) \wedge (((p (ap (ap c_2Earithmetic_2E_3C_3D (ap c_2Earithmetic_2EBIT1 \\
& V0n)) c_2Earithmetic_2EZERO)) \Leftrightarrow False) \wedge (((p (ap (ap c_2Earithmetic_2E_3C_3D \\
& (ap c_2Earithmetic_2EBIT2 V0n)) c_2Earithmetic_2EZERO)) \Leftrightarrow False) \wedge \\
& (((p (ap (ap c_2Earithmetic_2E_3C_3D (ap c_2Earithmetic_2EBIT1 \\
& V0n)) (ap c_2Earithmetic_2EBIT1 V1m))) \Leftrightarrow (p (ap (ap c_2Earithmetic_2E_3C_3D \\
& V0n) V1m))) \wedge (((p (ap (ap c_2Earithmetic_2E_3C_3D (ap c_2Earithmetic_2EBIT1 \\
& V0n)) (ap c_2Earithmetic_2EBIT2 V1m))) \Leftrightarrow (p (ap (ap c_2Earithmetic_2E_3C_3D \\
& V0n) V1m))) \wedge (((p (ap (ap c_2Earithmetic_2E_3C_3D (ap c_2Earithmetic_2EBIT2 \\
& V0n)) (ap c_2Earithmetic_2EBIT1 V1m))) \Leftrightarrow (\neg(p (ap (ap c_2Earithmetic_2E_3C_3D \\
& V1m) V0n)))) \wedge ((p (ap (ap c_2Earithmetic_2E_3C_3D (ap c_2Earithmetic_2EBIT2 \\
& V0n)) (ap c_2Earithmetic_2EBIT2 V1m))) \Leftrightarrow (p (ap (ap c_2Earithmetic_2E_3C_3D \\
& V0n) V1m))))))))))) \\
\end{aligned} \tag{68}$$

Assume the following.

$$(\forall V0t \in 2. ((\neg(\neg(p V0t))) \Leftrightarrow (p V0t))) \tag{69}$$

Assume the following.

$$(\forall V0A \in 2. ((p V0A) \Rightarrow ((\neg(p V0A)) \Rightarrow False))) \tag{70}$$

Assume the following.

$$\begin{aligned}
& (\forall V0A \in 2. (\forall V1B \in 2. (((\neg((p V0A) \vee (p V1B))) \Rightarrow False) \Leftrightarrow \\
& ((p V0A) \Rightarrow False) \Rightarrow ((\neg(p V1B)) \Rightarrow False)))) \\
\end{aligned} \tag{71}$$

Assume the following.

$$\begin{aligned}
& (\forall V0A \in 2. (\forall V1B \in 2. (((\neg((\neg(p V0A)) \vee (p V1B))) \Rightarrow False) \Leftrightarrow \\
& ((p V0A) \Rightarrow ((\neg(p V1B)) \Rightarrow False)))))) \\
\end{aligned} \tag{72}$$

Assume the following.

$$(\forall V0A \in 2. (((\neg(p V0A)) \Rightarrow False) \Rightarrow (((p V0A) \Rightarrow False) \Rightarrow False))) \tag{73}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p V0p) \Leftrightarrow \\
& (p V1q) \Leftrightarrow (p V2r))) \Leftrightarrow (((p V0p) \vee ((p V1q) \vee (p V2r))) \wedge (((p V0p) \vee ((\neg(p \\
& V2r)) \vee (\neg(p V1q)))) \wedge (((p V1q) \vee ((\neg(p V2r)) \vee (\neg(p V0p)))) \wedge ((p V2r) \vee \\
& ((\neg(p V1q)) \vee (\neg(p V0p))))))))))) \\
\end{aligned} \tag{74}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p V0p) \Leftrightarrow \\
& (p V1q) \wedge (p V2r))) \Leftrightarrow (((p V0p) \vee ((\neg(p V1q)) \vee (\neg(p V2r)))) \wedge (((p V1q) \vee \\
& (\neg(p V0p))) \wedge ((p V2r) \vee (\neg(p V0p)))))))))) \\
\end{aligned} \tag{75}$$

Assume the following.

$$\begin{aligned} & (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p V0p) \Leftrightarrow \\ & (p V1q) \vee (p V2r))) \Leftrightarrow (((p V0p) \vee (\neg(p V1q))) \wedge (((p V0p) \vee (\neg(p V2r))) \wedge \\ & ((p V1q) \vee ((p V2r) \vee (\neg(p V0p)))))))))) \end{aligned} \quad (76)$$

Assume the following.

$$\begin{aligned} & (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p V0p) \Leftrightarrow \\ & (p V1q) \Rightarrow (p V2r))) \Leftrightarrow (((p V0p) \vee (p V1q)) \wedge (((p V0p) \vee (\neg(p V2r))) \wedge \\ & (\neg(p V1q)) \vee ((p V2r) \vee (\neg(p V0p)))))))))) \end{aligned} \quad (77)$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. (((p V0p) \Leftrightarrow (\neg(p V1q))) \Leftrightarrow (((p V0p) \vee \\ (p V1q)) \wedge ((\neg(p V1q)) \vee (\neg(p V0p))))))) \quad (78)$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p V0p) \Rightarrow (p V1q))) \Rightarrow (p V0p)))) \quad (79)$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p V0p) \Rightarrow (p V1q))) \Rightarrow (\neg(p V1q)))))) \quad (80)$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p V0p) \vee (p V1q))) \Rightarrow (\neg(p V0p)))))) \quad (81)$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p V0p) \vee (p V1q))) \Rightarrow (\neg(p V1q)))))) \quad (82)$$

Assume the following.

$$(\forall V0p \in 2. ((\neg(\neg(p V0p))) \Rightarrow (p V0p))) \quad (83)$$

Theorem 1

$$\begin{aligned} & \forall A_27a.\text{nonempty } A_27a \Rightarrow \forall A_27b.\text{nonempty } A_27b \Rightarrow \\ & \forall V0b \in (\text{ty_2Enum_2Enum}^{A_27a}). (\forall V1x \in A_27b. (\forall V2f \in \\ & (A_27b^{A_27a}). ((p (ap (c_2Ebag_2EFINITE_BAG A_27a) V0b)) \Rightarrow ((\\ & p (ap (ap (c_2Ebag_2EBAG_IN A_27b) V1x) (ap (ap (c_2Ebag_2EBAG_IMAGE \\ & A_27b A_27a) V2f) V0b))) \Leftrightarrow (\exists V3y \in A_27a. (((ap V2f V3y) = V1x) \wedge \\ & (p (ap (ap (c_2Ebag_2EBAG_IN A_27a) V3y) V0b)))))))))) \end{aligned}$$