thm_2Ebitstring_2Eops__to__n2w (TMM7JR9khY3sauxTdKJHArE3CkdCt3vJiHk)

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Let $ty\_2Efcp\_2Efinite\_\_image : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty\_2Efcp\_2Efinite\_\_image\ A0) \tag{1}$$

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* $\iota \Rightarrow \iota$.

Let $ty\_2Ebool\_2Eitself : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty\_2Ebool\_2Eitself\ A0) \tag{2}$$

Let $c\_2Ebool\_2Ethe\_\_value : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Ebool\_2Ethe\_\_value\ A\_27a \in (ty\_2Ebool\_2Eitself\ A\_27a) \tag{3}$$

Let $ty\_2Enum\_2Enum : \iota$ be given. Assume the following.

$$nonempty\ ty\_2Enum\_2Enum \tag{4}$$

Let $c\_2Efcp\_2Edimindex : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Efcp\_2Edimindex\ A\_27a \in (ty\_2Enum\_2Enum^{(ty\_2Ebool\_2Eitself\ A\_27a)}) \tag{5}$$

Definition 2 *We define* c_2Ebool_2ET *to be* $(ap\ (ap\ (\mathsf{c\_2Emin\_2E\_3D}\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1$

Definition 3 *We define* c_2Ebool_2E_21 *to be* $\lambda A\_27a : \iota.(\lambda V0P \in (2^{A\_27a}).(ap\ (ap\ (\mathsf{c\_2Emin\_2E\_3D}\ (2^{A\_27a}$

Definition 4 *We define* c_2Ebool_2EF *to be* $(ap\ (\mathsf{c\_2Ebool\_2E\_21}\ 2)\ (\lambda V0t \in 2.V0t))$.

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* $(\lambda V0t \in 2.(ap\ (ap\ \mathsf{c\_2Emin\_2E\_3D\_3D\_3E}\ V0t)\ \mathsf{c\_2Ebool\_2EF}$

Definition 7 *We define* c_2Ebool_2E_2F_5C *to be* $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap\ (\mathsf{c\_2Ebool\_2E\_21}\ 2)\ (\lambda V2t \in 2$

Let $c\_2Enum\_2EREP\_\_num : \iota$ be given. Assume the following.

$$c\_2Enum\_2EREP\_\_num \in (omega^{ty\_2Enum\_2Enum}) \tag{6}$$

Let $c\_2Enum\_2ESUC\_\_REP : \iota$ be given. Assume the following.

$$c\_2Enum\_2ESUC\_\_REP \in (omega^{omega}) \tag{7}$$

Let $c\_2Enum\_2EABS\_\_num : \iota$ be given. Assume the following.

$$c\_2Enum\_2EABS\_\_num \in (ty\_2Enum\_2Enum^{omega}) \tag{8}$$

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_2Emin_2E_40 *to be* $\lambda A.\lambda P \in 2^A.$**if** $(\exists x \in A.p\ (ap\ P\ x))$ **then** $(the\ (\lambda x.x \in A \wedge p$ *of type* $\iota \Rightarrow \iota$.

Definition 10 *We define* c_2Ebool_2E_3F *to be* $\lambda A\_27a : \iota.(\lambda V0P \in (2^{A\_27a}).(ap\ V0P\ (ap\ (\mathsf{c\_2Emin\_2E\_40}$

Definition 11 *We define* c_2Eprim__rec_2E_3C *to be* $\lambda V0m \in ty\_2Enum\_2Enum.\lambda V1n \in ty\_2Enum\_2Enu$

Definition 12 *We define* c_2Ebool_2E_3F_21 *to be* $\lambda A\_27a : \iota.(\lambda V0P \in (2^{A\_27a}).(ap\ (ap\ \mathsf{c\_2Ebool\_2E\_2F\_5C}$

Definition 13 *We define* c_2Efcp_2Efinite__index *to be* $\lambda A\_27a : \iota.(ap\ (\mathsf{c\_2Emin\_2E\_40}\ (A\_27a^{ty\_2Enum\_2Enu}$

Let $ty\_2Efcp\_2Ecart : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow \forall A1.nonempty\ A1 \Rightarrow nonempty\ (ty\_2Efcp\_2Ecart\ A0\ A1) \tag{9}$$

Let $c\_2Efcp\_2Edest\_\_cart : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow c\_2Efcp\_2Edest\_\_cart\ A\_27a\ A\_27b \in ((A\_27a^{(ty\_2Efcp\_2Efinite\_\_image\ A\_27b)})^{(ty\_2Efcp\_2Ecart\ A\_27a\ A\_27b)}) \tag{10}$$

Definition 14 *We define* c_2Efcp_2Efcp__index *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.\lambda V0x \in (ty\_2Efcp\_2Ecart\ A\_27$

Let $c\_2Enum\_2EZERO\_\_REP : \iota$ be given. Assume the following.

$$c\_2Enum\_2EZERO\_\_REP \in omega \tag{11}$$

Definition 15 *We define* c_2Enum_2E0 *to be* $(ap\ c\_2Enum\_2EABS\_\_num\ c\_2Enum\_2EZERO\_\_REP)$.

Definition 16 *We define* c_2Earithmetic_2EZERO *to be* c_2Enum_2E0.

Let $c\_2Earithmetic\_2E\_2B : \iota$ be given. Assume the following.

$$c\_2Earithmetic\_2E\_2B \in ((ty\_2Enum\_2Enum^{ty\_2Enum\_2Enum})^{ty\_2Enum\_2Enum}) \tag{12}$$

Definition 17 *We define* c_2Earithmetic_2EBIT2 *to be* $\lambda V0n \in ty\_2Enum\_2Enum.(ap\ (ap\ c\_2Earithmetic$

Definition 18 *We define* c_2Earithmetic_2ENUMERAL *to be* $\lambda V0x \in ty\_2Enum\_2Enum.V0x.$

Let $c\_2Earithmetic\_2EEXP : \iota$ be given. Assume the following.

$$c\_2Earithmetic\_2EEXP \in ((ty\_2Enum\_2Enum^{ty\_2Enum\_2Enum})^{ty\_2Enum\_2Enum}) \tag{13}$$

Definition 19 *We define* c_2Ebool_2ECOND *to be* $\lambda A\_27a : \iota.(\lambda V0t \in 2.(\lambda V1t1 \in A\_27a.(\lambda V2t2 \in A\_27a.($

Definition 20 *We define* c_2Ebit_2ESBIT *to be* $\lambda V0b \in 2.\lambda V1n \in ty_2Enum_2Enum.(ap\ (ap\ (ap\ ($c_2Eboo

Let $c\_2Esum\_\_num\_2ESUM : \iota$ be given. Assume the following.

$$c\_2Esum\_\_num\_2ESUM \in ((ty\_2Enum\_2Enum^{(ty\_2Enum\_2Enum^{ty\_2Enum\_2Enum})})^{ty\_2Enum\_2Enum}) \tag{14}$$

Definition 21 *We define* c_2Ewords_2Ew2n *to be* $\lambda A\_27a : \iota.\lambda V0w \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).(ap\ (ap\ c$

Let $c\_2Ewords\_2Edimword : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Ewords\_2Edimword\ A\_27a \in (ty\_2Enum\_2Enum^{(ty\_2Ebool\_2Eitself\ A\_27a)}) \tag{15}$$

Let $c\_2Earithmetic\_2E\_2D : \iota$ be given. Assume the following.

$$c\_2Earithmetic\_2E\_2D \in ((ty\_2Enum\_2Enum^{ty\_2Enum\_2Enum})^{ty\_2Enum\_2Enum}) \tag{16}$$

Definition 22 *We define* c_2Earithmetic_2EBIT1 *to be* $\lambda V0n \in ty\_2Enum\_2Enum.(ap\ (ap\ c\_2Earithmetic$

Let $c\_2Earithmetic\_2EDIV : \iota$ be given. Assume the following.

$$c\_2Earithmetic\_2EDIV \in ((ty\_2Enum\_2Enum^{ty\_2Enum\_2Enum})^{ty\_2Enum\_2Enum}) \tag{17}$$

Definition 23 *We define* c_2Ebit_2EDIV__2EXP *to be* $\lambda V0x \in ty\_2Enum\_2Enum.\lambda V1n \in ty\_2Enum\_2En$

Let $c\_2Earithmetic\_2EMOD : \iota$ be given. Assume the following.

$$c\_2Earithmetic\_2EMOD \in ((ty\_2Enum\_2Enum^{ty\_2Enum\_2Enum})^{ty\_2Enum\_2Enum}) \tag{18}$$

Definition 24 *We define* c_2Ebit_2EMOD__2EXP *to be* $\lambda V0x \in ty\_2Enum\_2Enum.\lambda V1n \in ty\_2Enum\_2E$

Definition 25 *We define* c_2Ebit_2EBITS *to be* $\lambda V0h \in ty\_2Enum\_2Enum.\lambda V1l \in ty\_2Enum\_2Enum.\lambda V$

Definition 26 *We define* c_2Ebit_2EBIT *to be* $\lambda V0b \in ty\_2Enum\_2Enum.\lambda V1n \in ty\_2Enum\_2Enum.(ap$

Definition 27 *We define* c_2Efcp_2EFCP *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.(\lambda V0g \in (A\_27a^{ty\_2Enum\_2Enum}).(ap$

Definition 28 *We define* c_2Ewords_2En2w *to be* $\lambda A_27a : \iota.\lambda V0n \in ty_2Enum_2Enum.(ap\ ($c_2Efcp_2EFC

Definition 29 *We define* c_2Ewords_2Eword__2comp *to be* $\lambda A\_27a : \iota.\lambda V0w \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).$

Definition 30 *We define* c_2Ewords_2Eword__msb *to be* $\lambda A\_27a : \iota.\lambda V0w \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).(ap$

Definition 31 *We define* c_2Ebool_2E_5C_2F *to be* $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap\ (\mathsf{c\_2Ebool\_2E\_21}\ 2)\ (\lambda V2t \in$

Let $ty\_2Epair\_2Eprod : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow \forall A1.nonempty\ A1 \Rightarrow nonempty\ (ty\_2Epair\_2Eprod\ A0\ A1) \tag{19}$$

Let $c\_2Epair\_2EABS\_\_prod : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow c\_2Epair\_2EABS\_\_prod\ A\_27a\ A\_27b \in ((ty\_2Epair\_2Eprod\ A\_27a\ A\_27b)^{((2^{A\_27b})^{A\_27a})}) \tag{20}$$

Definition 32 *We define* c_2Epair_2E_2C *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.\lambda V0x \in A\_27a.\lambda V1y \in A\_27b.(ap\ (c\_2$

Definition 33 *We define* c_2Ebool_2ELET *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.(\lambda V0f \in (A\_27b^{A\_27a}).(\lambda V1x \in A\_27$

Definition 34 *We define* c_2Ewords_2Enzcv *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b \in ($

Let $c\_2Epair\_2ESND : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow c\_2Epair\_2ESND\ A\_27a\ A\_27b \in (A\_27b^{(ty\_2Epair\_2Eprod\ A\_27a\ A\_27b)}) \tag{21}$$

Let $c\_2Epair\_2EFST : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow c\_2Epair\_2EFST\ A\_27a\ A\_27b \in (A\_27a^{(ty\_2Epair\_2Eprod\ A\_27a\ A\_27b)}) \tag{22}$$

Definition 35 *We define* c_2Epair_2EUNCURRY *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.\lambda A\_27c : \iota.\lambda V0f \in ((A\_27c^{A\_27}$

Definition 36 *We define* c_2Ewords_2Eword__hs *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b$

Definition 37 *We define* c_2Ewords_2Eword__ls *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b$

Definition 38 *We define* c_2Ewords_2Eword__hi *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b$

Definition 39 *We define* c_2Ewords_2Eword__lo *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b$

Definition 40 *We define* c_2Ewords_2Eword__ge *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b$

Definition 41 *We define* c_2Ewords_2Eword__le *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b$

Definition 42 *We define* c_2Ewords_2Eword__gt *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b$

Definition 43 *We define* c_2Ewords_2Eword__lt *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1b$

Definition 44 *We define* c_2Ewords_2Eword__mod *to be* $\lambda A\_27a : \iota.\lambda V0v \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V$

Definition 45 *We define* c_2Ewords_2Eword__div *to be* $\lambda A\_27a : \iota.\lambda V0v \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1$

Definition 46 *We define* c_2Ewords_2Eword__quot *to be* $\lambda A\_27a : \iota.\lambda V0a \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V$

Let $c\_2Earithmetic\_2E\_2A : \iota$ be given. Assume the following.

$$c\_2Earithmetic\_2E\_2A \in ((ty\_2Enum\_2Enum^{ty\_2Enum\_2Enum})^{ty\_2Enum\_2Enum}) \tag{23}$$

Definition 47 *We define* c_2Ewords_2Eword__mul *to be* $\lambda A\_27a : \iota.\lambda V0v \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V$

Definition 48 *We define* c_2Ewords_2Eword__add *to be* $\lambda A\_27a : \iota.\lambda V0v \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V$

Definition 49 *We define* c_2Ewords_2Eword__sub *to be* $\lambda A\_27a : \iota.\lambda V0v \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).\lambda V1$

Let $c\_2Elogroot\_2ELOG : \iota$ be given. Assume the following.

$$c\_2Elogroot\_2ELOG \in ((ty\_2Enum\_2Enum^{ty\_2Enum\_2Enum})^{ty\_2Enum\_2Enum}) \tag{24}$$

Definition 50 *We define* c_2Ebit_2ELOG2 *to be* $(ap\ c\_2Elogroot\_2ELOG\ (ap$ c_2Earithmetic_2ENUMERAL

Definition 51 *We define* c_2Ewords_2Eword__log2 *to be* $\lambda A\_27a : \iota.\lambda V0w \in (ty\_2Efcp\_2Ecart\ 2\ A\_27a).(a$

Let $ty\_2Elist\_2Elist : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty\_2Elist\_2Elist\ A0) \tag{25}$$

Let $c\_2Elist\_2ENIL : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Elist\_2ENIL\ A\_27a \in (ty\_2Elist\_2Elist\ A\_27a) \tag{26}$$

Let $c\_2Elist\_2ECONS : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Elist\_2ECONS\ A\_27a \in (((ty\_2Elist\_2Elist\ A\_27a)^{(ty\_2Elist\_2Elist\ A\_27a)})^{A\_27a}) \tag{27}$$

Let $c\_2Elist\_2ELENGTH : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Elist\_2ELENGTH\ A\_27a \in (ty\_2Enum\_2Enum^{(ty\_2Elist\_2Elist\ A\_27a)}) \tag{28}$$

Let $c\_2Elist\_2ETAKE : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Elist\_2ETAKE\ A\_27a \in (((ty\_2Elist\_2Elist\ A\_27a)^{(ty\_2Elist\_2Elist\ A\_27a)})^{ty\_2Enum\_2Enum}) \tag{29}$$

Definition 52 *We define* c_2Ebitstring_2Eshiftr *to be* $\lambda V0v \in (ty\_2Elist\_2Elist\ 2).\lambda V1m \in ty\_2Enum\_2Er$

Let $c\_2Elist\_2EDROP : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Elist\_2EDROP\ A\_27a \in (((ty\_2Elist\_2Elist\ A\_27a)^{(ty\_2Elist\_2Elist\ A\_27a)})^{ty\_2Enum\_2Enum}) \tag{30}$$

Definition 53 *We define* c_2Ecombin_2EK *to be* $\lambda A\_27a : \iota.\lambda A\_27b : \iota.(\lambda V0x \in A\_27a.(\lambda V1y \in A\_27b.V0x)$

Let $c\_2Elist\_2EGENLIST : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Elist\_2EGENLIST\ A\_27a \in (((ty\_2Elist\_2Elist\ A\_27a)^{ty\_2Enum\_2Enum})^{(A\_27a^{ty\_2Enum\_2Enum})}) \tag{31}$$

Let $c\_2Elist\_2EAPPEND : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow c\_2Elist\_2EAPPEND\ A\_27a \in (((ty\_2Elist\_2Elist\ A\_27a)^{(ty\_2Elist\_2Elist\ A\_27a)})^{(ty\_2Elist\_2Elist\ A\_27a)}) \tag{32}$$

Definition 54 *We define* c_2Elist_2EPAD__LEFT *to be* $\lambda A\_27a : \iota.\lambda V0c \in A\_27a.\lambda V1n \in ty\_2Enum\_2Enu$

Definition 55 *We define* c_2Ebitstring_2Ezero__extend *to be* $\lambda V0n \in ty\_2Enum\_2Enum.\lambda V1v \in (ty\_2Elist$

Definition 56 *We define* c_2Ebitstring_2Efixwidth *to be* $\lambda V0n \in ty\_2Enum\_2Enum.\lambda V1v \in (ty\_2Elist\_2E$

Definition 57 *We define* c_2Ebitstring_2Efield *to be* $\lambda V0h \in ty\_2Enum\_2Enum.\lambda V1l \in ty\_2Enum\_2Enum$

Definition 58 *We define* c_2Ebitstring_2Etestbit *to be* $\lambda V0b \in ty\_2Enum\_2Enum.\lambda V1v \in (ty\_2Elist\_2Elis$

Definition 59 *We define* c_2Ebitstring_2Ev2w *to be* $\lambda A\_27a : \iota.\lambda V0v \in (ty\_2Elist\_2Elist\ 2).(ap\ (\mathsf{c\_2Efcp\_2}$

Let $c\_2Ebitstring\_2Ebitify : \iota$ be given. Assume the following.

$$c\_2Ebitstring\_2Ebitify \in (((ty\_2Elist\_2Elist\ ty\_2Enum\_2Enum)^{(ty\_2Elist\_2Elist\ 2)})^{(ty\_2Elist\_2Elist\ ty\_2En} \tag{33}$$

Let $c\_2Enumposrep\_2El2n : \iota$ be given. Assume the following.

$$c\_2Enumposrep\_2El2n \in ((ty\_2Enum\_2Enum^{(ty\_2Elist\_2Elist\ ty\_2Enum\_2Enum)})^{ty\_2Enum\_2Enum}) \tag{34}$$

Definition 60 *We define* c_2Enumposrep_2Enum__from__bin__list *to be* $(ap\ c\_2Enumposrep\_2El2n\ (ap\ \mathsf{c\_2E}$

Definition 61 *We define* c_2Ebitstring_2Ev2n *to be* $\lambda V0l \in (ty\_2Elist\_2Elist\ 2).(ap\ \mathsf{c\_2Enumposrep\_2Enum}$

Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow (\forall V0v \in (ty\_2Elist\_2Elist\ 2).((ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27a)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V0v)) = (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27a)\ V0v))) \tag{35}$$

Assume the following.

$$True \tag{36}$$

Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow (\forall V0t \in 2.((\forall V1x \in A\_27a.(p\ V0t)) \Leftrightarrow (p\ V0t))) \tag{37}$$

Assume the following.

$$(\forall V0t \in 2.(((True \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)) \wedge ((((p\ V0t) \wedge True) \Leftrightarrow (p\ V0t)) \wedge (((False \wedge (p\ V0t)) \Leftrightarrow False) \wedge ((((p\ V0t) \wedge False) \Leftrightarrow False) \wedge (((p\ V0t) \wedge (p\ V0t)) \Leftrightarrow (p\ V0t))))))) \tag{38}$$

Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow (\forall V0x \in A\_27a.((V0x = V0x) \Leftrightarrow True)) \tag{39}$$

Theorem 1

$\forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow \forall A\_27c.$
$nonempty\ A\_27c \Rightarrow \forall A\_27d.nonempty\ A\_27d \Rightarrow \forall A\_27e.nonempty$
$A\_27e \Rightarrow \forall A\_27f.nonempty\ A\_27f \Rightarrow \forall A\_27g.nonempty\ A\_27g \Rightarrow$
$\forall A\_27h.nonempty\ A\_27h \Rightarrow \forall A\_27i.nonempty\ A\_27i \Rightarrow \forall A\_27j.$
$nonempty\ A\_27j \Rightarrow \forall A\_27k.nonempty\ A\_27k \Rightarrow \forall A\_27l.nonempty$
$A\_27l \Rightarrow \forall A\_27m.nonempty\ A\_27m \Rightarrow \forall A\_27n.nonempty\ A\_27n \Rightarrow$
$\forall A\_27o.nonempty\ A\_27o \Rightarrow ((\forall V0v \in (ty\_2Elist\_2Elist$
$2).((ap\ (\mathsf{c\_2Ewords\_2Eword\_\_2comp}\ A\_27b)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}$
$A\_27b)\ V0v)) = (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_2comp}\ A\_27b)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}$
$A\_27b)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V0v)))))\wedge((\forall V1v \in (ty\_2Elist\_2Elist$
$2).((ap\ (\mathsf{c\_2Ewords\_2Eword\_\_log2}\ A\_27c)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}$
$A\_27c)\ V1v)) = (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_log2}\ A\_27c)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}$
$A\_27c)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V1v)))))\wedge((\forall V2v \in (ty\_2Elist\_2Elist$
$2).(\forall V3n \in ty\_2Enum\_2Enum.(((ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}$
$A\_27a)\ V2v) = (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27a)\ V3n)) \Leftrightarrow ((ap\ (\mathsf{c\_2Ewords\_2En2w}$
$A\_27a)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V2v)) = (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27a)$
$V3n)))))\wedge((\forall V4v \in (ty\_2Elist\_2Elist\ 2).(\forall V5n \in$
$ty\_2Enum\_2Enum.(((ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27a)\ V5n) = (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}$
$A\_27a)\ V4v)) \Leftrightarrow ((ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27a)\ V5n) = (ap\ (\mathsf{c\_2Ewords\_2En2w}$
$A\_27a)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V4v))))))\wedge((\forall V6v \in (ty\_2Elist\_2Elist$
$2).(\forall V7w \in (ty\_2Efcp\_2Ecart\ 2\ A\_27d).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_add}$
$A\_27d)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27d)\ V6v))\ V7w) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_add}$
$A\_27d)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27d)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V6v)))$
$V7w))))\wedge((\forall V8v \in (ty\_2Elist\_2Elist\ 2).(\forall V9w \in ($
$ty\_2Efcp\_2Ecart\ 2\ A\_27e).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_add}\ A\_27e)$
$V9w)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27e)\ V8v)) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_add}$
$A\_27e)\ V9w)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27e)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}$
$V8v))))))\wedge((\forall V10v \in (ty\_2Elist\_2Elist\ 2).(\forall V11w \in$
$(ty\_2Efcp\_2Ecart\ 2\ A\_27f).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_sub}\ A\_27f)$
$(ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27f)\ V10v))\ V11w) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_sub}$
$A\_27f)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27f)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V10v)))$
$V11w))))\wedge((\forall V12v \in (ty\_2Elist\_2Elist\ 2).(\forall V13w \in$
$(ty\_2Efcp\_2Ecart\ 2\ A\_27g).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_sub}\ A\_27g)$
$V13w)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27g)\ V12v)) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_sub}$
$A\_27g)\ V13w)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27g)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}$
$V12v))))))\wedge((\forall V14v \in (ty\_2Elist\_2Elist\ 2).(\forall V15w \in$
$(ty\_2Efcp\_2Ecart\ 2\ A\_27h).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_mul}\ A\_27h)$
$(ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27h)\ V14v))\ V15w) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_mul}$
$A\_27h)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27h)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V14v)))$
$V15w))))\wedge((\forall V16v \in (ty\_2Elist\_2Elist\ 2).(\forall V17w \in$
$(ty\_2Efcp\_2Ecart\ 2\ A\_27i).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_mul}\ A\_27i)$
$V17w)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27i)\ V16v)) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_mul}$
$A\_27i)\ V17w)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27i)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}$
$V16v))))))\wedge((\forall V18v \in (ty\_2Elist\_2Elist\ 2).(\forall V19w \in$
$(ty\_2Efcp\_2Ecart\ 2\ A\_27j).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_quot}$
$A\_27j)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27j)\ V18v))\ V19w) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_quot}$
$A\_27j)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27j)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V18v)))$
$V19w))))\wedge((\forall V20v \in (ty\_2Elist\_2Elist\ 2).(\forall V21w \in$
$(ty\_2Efcp\_2Ecart\ 2\ A\_27k).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_quot}$
$A\_27k)\ V21w)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27k)\ V20v)) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_quot}$
$A\_27k)\ V21w)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27k)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}$
$V20v))))))\wedge((\forall V22v \in (ty\_2Elist\_2Elist\ 2).(\forall V23w \in$
$(ty\_2Efcp\_2Ecart\ 2\ A\_27l).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_div}\ A\_27l)$
$(ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27l)\ V22v))\ V23w) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_div}$
$A\_27l)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27l)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}\ V22v)))$
$V23w))))\wedge((\forall V24v \in (ty\_2Elist\_2Elist\ 2).(\forall V25w \in$
$(ty\_2Efcp\_2Ecart\ 2\ A\_27m).((ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_div}\ A\_27m)$
$V25w)\ (ap\ (\mathsf{c\_2Ebitstring\_2Ev2w}\ A\_27m)\ V24v)) = (ap\ (ap\ (\mathsf{c\_2Ewords\_2Eword\_\_div}$
$A\_27m)\ V25w)\ (ap\ (\mathsf{c\_2Ewords\_2En2w}\ A\_27m)\ (ap\ \mathsf{c\_2Ebitstring\_2Ev2n}$