

thm_2Ewords_2EWORD__MULT__CLAUSES
(TMXSb1NRXcdm2uqfju6E1AqZD539XjYrm7b)

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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_2E3D 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 $(ap\ c_2Enum_2EABS_num\ c_2Enum_2EZERO_REP)$.

Definition 3 We define $c_2Earithmetic_2EZERO$ to be c_2Enum_2E0 .

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

$$c_2Enum_2EREP_num \in (\omega^{ty_2Enum_2Enum}) \tag{4}$$

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

$$c_2Enum_2ESUC_REP \in (\omega^{\omega}) \tag{5}$$

Definition 4 We define c_2Ebool_2ET to be $(ap\ (ap\ (c_2Emin_2E3D\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1x))$

Definition 5 We define c_2Ebool_2E21 to be $\lambda A.\lambda a : \iota.(\lambda V0P \in (2^{A-27a}).(ap\ (ap\ (c_2Emin_2E3D\ (2^{A-27a}))\ (\lambda V1x \in 2.V1x))\ (\lambda V1x \in 2.V1x))$

Definition 6 We define c_2Enum_2ESUC to be $\lambda V0m \in ty_2Enum_2Enum.(ap\ c_2Enum_2EABS_num\ (ap\ (ap\ (c_2Emin_2E3D\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1x))$

Let $c_2Earithmetic_2E2B : \iota$ be given. Assume the following.

$$c_2Earithmetic_2E2B \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \tag{6}$$

Definition 7 We define `c_2Earithmic_2EBIT1` to be $\lambda V0n \in ty_2Enum_2Enum.(ap (ap c_2Earithmic_2EBIT1 V0n) n)$.

Definition 8 We define `c_2Earithmic_2ENUMERAL` to be $\lambda V0x \in ty_2Enum_2Enum.V0x$.

Definition 9 We define `c_2Ebool_2EF` to be $(ap (c_2Ebool_2E21 2) (\lambda V0t \in 2.V0t))$.

Let `ty_2Ebool_2Eitself` : $\iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty A0 \Rightarrow nonempty (ty_2Ebool_2Eitself A0) \quad (7)$$

Let `c_2Ewords_2Edimword` : $\iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow c_2Ewords_2Edimword A_27a \in (ty_2Enum_2Enum^{(ty_2Ebool_2Eitself A_27a)}) \quad (8)$$

Definition 10 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 11 We define `c_2Ebool_2E_2F_5C` to be $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_2Ebool_2E21 2) (\lambda V2t \in 2.V2t) t2)))$.

Definition 12 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 $(\lambda x.x \in A \wedge p (ap P x))$ of type $\iota \Rightarrow \iota$.

Definition 13 We define `c_2Ebool_2E_3F` to be $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap V0P (ap (c_2Emin_2E_40 A_27a) P)))$.

Let `ty_2Efcp_2Efinite_image` : $\iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty A0 \Rightarrow nonempty (ty_2Efcp_2Efinite_image A0) \quad (9)$$

Let `c_2Ebool_2Ethe_value` : $\iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow c_2Ebool_2Ethe_value A_27a \in (ty_2Ebool_2Eitself A_27a) \quad (10)$$

Let `c_2Efcp_2Edimindex` : $\iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow c_2Efcp_2Edimindex A_27a \in (ty_2Enum_2Enum^{(ty_2Ebool_2Eitself A_27a)}) \quad (11)$$

Definition 14 We define `c_2Ebool_2E_7E` to be $(\lambda V0t \in 2.(ap (ap c_2Emin_2E_3D_3D_3E V0t) c_2Ebool_2E_2F_5C))$.

Definition 15 We define `c_2Eprim_rec_2E_3C` to be $\lambda V0m \in ty_2Enum_2Enum.\lambda V1n \in ty_2Enum_2Enum.V0m$.

Definition 16 We define `c_2Ebool_2E_3F_21` to be $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap (ap c_2Ebool_2E_2F_5C A_27a) P))$.

Definition 17 We define `c_2Efcp_2Efinite_index` to be $\lambda A_27a : \iota.(ap (c_2Emin_2E_40 A_27a) (ap (c_2Emin_2E_40 A_27a) P))$.

Let $ty_2Efc_2Ecart : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow \forall A1.nonempty\ A1 \Rightarrow nonempty\ (ty_2Efc_2Ecart\ A0\ A1) \quad (12)$$

Let $c_2Efc_2Edest_cart : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Efc_2Edest_cart\ A_27a\ A_27b \in ((A_27a^{(ty_2Efc_2Efinite_image\ A_27b)})^{(ty_2Efc_2Ecart\ A_27a\ A_27b)}) \quad (13)$$

Definition 18 We define $c_2Efc_2Efc_index$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0x \in (ty_2Efc_2Ecart\ A_27a\ A_27b).$

Definition 19 We define $c_2Earithmetic_2EBIT2$ to be $\lambda V0n \in ty_2Enum_2Enum.(ap\ (ap\ c_2Earithmetic_2EBIT2\ n))$

Let $c_2Earithmetic_2EEXP : \iota$ be given. Assume the following.

$$c_2Earithmetic_2EEXP \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \quad (14)$$

Definition 20 We define c_2Ebool_2ECOND to be $\lambda A_27a : \iota.(\lambda V0t \in 2.(\lambda V1t1 \in A_27a.(\lambda V2t2 \in A_27a.(c_2Ebool_2ECOND\ t1\ t2))))$

Definition 21 We define c_2Ebit_2ESBIT to be $\lambda V0b \in 2.\lambda V1n \in ty_2Enum_2Enum.(ap\ (ap\ (ap\ (c_2Ebool_2ECOND\ b)\ n)))$

Let $c_2Esum_num_2ESUM : \iota$ be given. Assume the following.

$$c_2Esum_num_2ESUM \in ((ty_2Enum_2Enum^{(ty_2Enum_2Enum^{ty_2Enum_2Enum})})^{ty_2Enum_2Enum}) \quad (15)$$

Definition 22 We define $c_2Ewords_2Ew2n$ to be $\lambda A_27a : \iota.\lambda V0w \in (ty_2Efc_2Ecart\ 2\ A_27a).(ap\ (ap\ (ap\ (c_2Ebit_2ESBIT\ w)\ n)))$

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

$$c_2Earithmetic_2EDIV \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \quad (16)$$

Definition 23 We define $c_2Ebit_2EDIV_2EXP$ to be $\lambda V0x \in ty_2Enum_2Enum.\lambda V1n \in ty_2Enum_2Enum.(ap\ (ap\ (ap\ (c_2Ebit_2ESBIT\ x)\ n)))$

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

$$c_2Earithmetic_2E_2D \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \quad (17)$$

Let $c_2Earithmetic_2EMOD : \iota$ be given. Assume the following.

$$c_2Earithmetic_2EMOD \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \quad (18)$$

Definition 24 We define $c_2Ebit_2EMOD_2EXP$ to be $\lambda V0x \in ty_2Enum_2Enum.\lambda V1n \in ty_2Enum_2Enum.(ap\ (ap\ (ap\ (c_2Ebit_2ESBIT\ x)\ n)))$

Definition 25 We define c_2Ebit_2EBITS to be $\lambda V0h \in ty_2Enum_2Enum.\lambda V1l \in ty_2Enum_2Enum.\lambda V2n \in ty_2Enum_2Enum.(ap\ (ap\ (ap\ (c_2Ebit_2ESBIT\ h)\ l)\ n))$

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_2Efcf_2EFCF 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 $\lambda A_27a : \iota.\lambda V0n \in ty_2Enum_2Enum.(ap (c_2Efcf_2EFCF$

Definition 29 We define $c_2Ewords_2Eword_add$ to be $\lambda A_27a : \iota.\lambda V0v \in (ty_2Efcf_2Ecart\ 2\ A_27a).\lambda V$

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

$$c_2Earithmetic_2E_2A \in ((ty_2Enum_2Enum^{ty_2Enum_2Enum})^{ty_2Enum_2Enum}) \quad (19)$$

Definition 30 We define $c_2Ewords_2Eword_mul$ to be $\lambda A_27a : \iota.\lambda V0v \in (ty_2Efcf_2Ecart\ 2\ A_27a).\lambda V$

Assume the following.

$$\begin{aligned} & (\forall V0m \in ty_2Enum_2Enum.(\forall V1n \in ty_2Enum_2Enum.(\\ & (ap (ap c_2Earithmetic_2E_2B\ V0m)\ V1n) = (ap (ap c_2Earithmetic_2E_2B \\ & \quad V1n)\ V0m)))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & (\forall V0m \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2A\ V0m) \\ & \quad c_2Enum_2E0) = c_2Enum_2E0)) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} & (\forall V0m \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2A (\\ & ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT1\ c_2Earithmetic_2EZERO))) \\ & \quad V0m) = V0m)) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & (\forall V0m \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2A\ V0m) \\ & (ap c_2Earithmetic_2ENUMERAL (ap c_2Earithmetic_2EBIT1\ c_2Earithmetic_2EZERO))) = \\ & \quad V0m)) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & (\forall V0m \in ty_2Enum_2Enum.(\forall V1n \in ty_2Enum_2Enum.(\\ & (ap (ap c_2Earithmetic_2E_2A\ V0m)\ V1n) = (ap (ap c_2Earithmetic_2E_2A \\ & \quad V1n)\ V0m)))) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} & (\forall V0m \in ty_2Enum_2Enum.(\forall V1n \in ty_2Enum_2Enum.(\\ & \quad \forall V2p \in ty_2Enum_2Enum.((ap (ap c_2Earithmetic_2E_2A (ap \\ & (ap c_2Earithmetic_2E_2B\ V0m)\ V1n))\ V2p) = (ap (ap c_2Earithmetic_2E_2B \\ & (ap (ap c_2Earithmetic_2E_2A\ V0m)\ V2p)) (ap (ap c_2Earithmetic_2E_2A \\ & \quad V1n)\ V2p)))))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned}
& (\forall V0m \in ty_2Enum_2Enum. (\forall V1n \in ty_2Enum_2Enum. (\\
& \quad \forall V2p \in ty_2Enum_2Enum. ((ap (ap c_2Earithmetic_2E_2A V2p) \\
& (ap (ap c_2Earithmetic_2E_2B V0m) V1n)) = (ap (ap c_2Earithmetic_2E_2B \\
& \quad (ap (ap c_2Earithmetic_2E_2A V2p) V0m)) (ap (ap c_2Earithmetic_2E_2A \\
& \quad \quad V2p) V1n))))))
\end{aligned} \tag{26}$$

Assume the following.

$$True \tag{27}$$

Assume the following.

$$(\forall V0t1 \in 2. (\forall V1t2 \in 2. (((p V0t1) \Rightarrow (p V1t2)) \Rightarrow (((p \\
V1t2) \Rightarrow (p V0t1)) \Rightarrow ((p V0t1) \Leftrightarrow (p V1t2)))))) \tag{28}$$

Assume the following.

$$(\forall V0t \in 2. (False \Rightarrow (p V0t))) \tag{29}$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0t \in 2. ((\forall V1x \in \\
A_27a. (p V0t)) \Leftrightarrow (p V0t))) \tag{30}$$

Assume the following.

$$\begin{aligned}
& (\forall V0t \in 2. (((True \wedge (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \wedge True) \Leftrightarrow \\
& (p V0t)) \wedge (((False \wedge (p V0t)) \Leftrightarrow False) \wedge (((p V0t) \wedge False) \Leftrightarrow False) \wedge \\
& \quad (((p V0t) \wedge (p V0t)) \Leftrightarrow (p V0t))))))
\end{aligned} \tag{31}$$

Assume the following.

$$\begin{aligned}
& (\forall V0t \in 2. (((True \Rightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Rightarrow True) \Leftrightarrow \\
& True) \wedge (((False \Rightarrow (p V0t)) \Leftrightarrow True) \wedge (((p V0t) \Rightarrow (p V0t)) \Leftrightarrow True) \wedge ((\\
& \quad (p V0t) \Rightarrow False) \Leftrightarrow \neg (p V0t))))))
\end{aligned} \tag{32}$$

Assume the following.

$$\begin{aligned}
& ((\forall V0t \in 2. ((\neg(\neg(p V0t))) \Leftrightarrow (p V0t))) \wedge (((\neg True) \Leftrightarrow False) \wedge \\
& \quad ((\neg False) \Leftrightarrow True)))
\end{aligned} \tag{33}$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a. ((V0x = V0x) \Leftrightarrow \\
True)) \tag{34}$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a. (\forall V1y \in \\
A_27a. ((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \tag{35}$$

Assume the following.

$$(\forall V0t \in 2.(((True \Leftrightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Leftrightarrow True) \Leftrightarrow (p V0t)) \wedge (((False \Leftrightarrow (p V0t)) \Leftrightarrow \neg(p V0t)) \wedge (((p V0t) \Leftrightarrow False) \Leftrightarrow \neg(p V0t)))))) \quad (36)$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(\forall V2t3 \in 2.(((p V0t1) \Rightarrow ((p V1t2) \Rightarrow (p V2t3))) \Leftrightarrow (((p V0t1) \wedge (p V1t2)) \Rightarrow (p V2t3)))))) \quad (37)$$

Assume the following.

$$(\forall V0x \in 2.(\forall V1x_{27} \in 2.(\forall V2y \in 2.(\forall V3y_{27} \in 2.(((p V0x) \Leftrightarrow (p V1x_{27})) \wedge ((p V1x_{27}) \Rightarrow ((p V2y) \Leftrightarrow (p V3y_{27})))))) \Rightarrow (((p V0x) \Rightarrow (p V2y)) \Leftrightarrow ((p V1x_{27}) \Rightarrow (p V3y_{27})))))) \quad (38)$$

Assume the following.

$$\forall A_{27a}.nonempty A_{27a} \Rightarrow \forall A_{27b}.nonempty A_{27b} \Rightarrow (\forall V0x \in (ty_2Efc_2Ecart A_{27a} A_{27b}).(\forall V1y \in (ty_2Efc_2Ecart A_{27a} A_{27b}).((V0x = V1y) \Leftrightarrow (\forall V2i \in ty_2Enum_2Enum.((ap (ap c_2Eprim_rec_2E_3C V2i) (ap (c_2Efc_2Edimindex A_{27b}) (c_2Ebool_2Ethe_value A_{27b}))) \Rightarrow ((ap (ap (c_2Efc_2Efc_index A_{27a} A_{27b}) V0x) V2i) = (ap (ap (c_2Efc_2Efc_index A_{27a} A_{27b}) V1y) V2i))))))) \quad (39)$$

Assume the following.

$$\forall A_{27a}.nonempty A_{27a} \Rightarrow (\forall V0w \in (ty_2Efc_2Ecart 2 A_{27a}).(\exists V1n \in ty_2Enum_2Enum.((V0w = (ap (c_2Ewords_2En2w A_{27a}) V1n)) \wedge (p (ap (ap c_2Eprim_rec_2E_3C V1n) (ap (c_2Ewords_2Edimword A_{27a}) (c_2Ebool_2Ethe_value A_{27a}))))))) \quad (40)$$

Assume the following.

$$\forall A_{27a}.nonempty A_{27a} \Rightarrow (\forall V0m \in ty_2Enum_2Enum.(\forall V1n \in ty_2Enum_2Enum.((ap (ap (c_2Ewords_2Eword_add A_{27a}) (ap (c_2Ewords_2En2w A_{27a}) V0m)) (ap (c_2Ewords_2En2w A_{27a}) V1n)) = (ap (c_2Ewords_2En2w A_{27a}) (ap (ap c_2Earithmetic_2E_2B V0m) V1n)))))) \quad (41)$$

Assume the following.

$$\forall A_{27a}.nonempty A_{27a} \Rightarrow (\forall V0m \in ty_2Enum_2Enum.(\forall V1n \in ty_2Enum_2Enum.((ap (ap (c_2Ewords_2Eword_mul A_{27a}) (ap (c_2Ewords_2En2w A_{27a}) V0m)) (ap (c_2Ewords_2En2w A_{27a}) V1n)) = (ap (c_2Ewords_2En2w A_{27a}) (ap (ap c_2Earithmetic_2E_2A V0m) V1n)))))) \quad (42)$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0i \in ty.2Enum.2Enum.(\\
& (p\ (ap\ (ap\ c.2Eprim_rec.2E.3C\ V0i)\ (ap\ (c.2EfcP.2Edimindex\ A.27a) \\
& (c.2Ebool.2Ethe_value\ A.27a)))) \Rightarrow (\neg(p\ (ap\ (ap\ (c.2EfcP.2EfcP_index \\
& 2\ A.27a)\ (ap\ (c.2Ewords.2En2w\ A.27a)\ c.2Enum.2E0))\ V0i))))
\end{aligned} \tag{43}$$

Theorem 1

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0v \in (ty.2EfcP.2Ecart \\
& 2\ A.27a).(\forall V1w \in (ty.2EfcP.2Ecart\ 2\ A.27a).(((ap\ (ap\ (\\
& c.2Ewords.2Eword_mul\ A.27a)\ (ap\ (c.2Ewords.2En2w\ A.27a)\ c.2Enum.2E0)) \\
V0v) = (ap\ (c.2Ewords.2En2w\ A.27a)\ c.2Enum.2E0)) \wedge (((ap\ (ap\ (c.2Ewords.2Eword_mul \\
A.27a)\ V0v)\ (ap\ (c.2Ewords.2En2w\ A.27a)\ c.2Enum.2E0)) = (ap\ (c.2Ewords.2En2w \\
A.27a)\ c.2Enum.2E0)) \wedge (((ap\ (ap\ (c.2Ewords.2Eword_mul\ A.27a) \\
(ap\ (c.2Ewords.2En2w\ A.27a)\ (ap\ c.2Earithmetic.2ENUMERAL\ (ap \\
c.2Earithmetic.2EBIT1\ c.2Earithmetic.2EZERO)))) V0v) = V0v) \wedge \\
(((ap\ (ap\ (c.2Ewords.2Eword_mul\ A.27a)\ V0v)\ (ap\ (c.2Ewords.2En2w \\
A.27a)\ (ap\ c.2Earithmetic.2ENUMERAL\ (ap\ c.2Earithmetic.2EBIT1 \\
c.2Earithmetic.2EZERO)))) = V0v) \wedge (((ap\ (ap\ (c.2Ewords.2Eword_mul \\
A.27a)\ (ap\ (ap\ (c.2Ewords.2Eword_add\ A.27a)\ V0v)\ (ap\ (c.2Ewords.2En2w \\
A.27a)\ (ap\ c.2Earithmetic.2ENUMERAL\ (ap\ c.2Earithmetic.2EBIT1 \\
c.2Earithmetic.2EZERO)))) V1w) = (ap\ (ap\ (c.2Ewords.2Eword_add \\
A.27a)\ (ap\ (ap\ (c.2Ewords.2Eword_mul\ A.27a)\ V0v)\ V1w)) V1w) \wedge \\
(((ap\ (ap\ (c.2Ewords.2Eword_mul\ A.27a)\ V0v)\ (ap\ (ap\ (c.2Ewords.2Eword_add \\
A.27a)\ V1w)\ (ap\ (c.2Ewords.2En2w\ A.27a)\ (ap\ c.2Earithmetic.2ENUMERAL \\
(ap\ c.2Earithmetic.2EBIT1\ c.2Earithmetic.2EZERO)))) = (ap\ (\\
ap\ (c.2Ewords.2Eword_add\ A.27a)\ V0v)\ (ap\ (ap\ (c.2Ewords.2Eword_mul \\
A.27a)\ V0v)\ V1w)))))))))
\end{aligned}$$