

thm_2Ebinary_ieee_2Efloat_negate_negate
(TMaqDf-
pxDk6XtEawwMGjFr2HURLYKvMagv4)

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Let $ty_2Ebinary_ieee_2Efloat : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow \forall A1.nonempty\ A1 \Rightarrow nonempty\ (ty_2Ebinary_ieee_2Efloat\ A0\ A1) \quad (1)$$

Let $ty_2EfcP_2Ecart : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow \forall A1.nonempty\ A1 \Rightarrow nonempty\ (ty_2EfcP_2Ecart\ A0\ A1) \quad (2)$$

Let $c_2Ebinary_ieee_2Efloat_Significand_fupd : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27t.nonempty\ A_27t \Rightarrow \forall A_27u.nonempty\ A_27u \Rightarrow \forall A_27w.nonempty\ A_27w \Rightarrow c_2Ebinary_ieee_2Efloat_Significand_fupd\ A_27t\ A_27u\ A_27w \in (((ty_2Ebinary_ieee_2Efloat\ A_27u\ A_27w)^{(ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27w)})) \quad (3)$$

Let $c_2Ebinary_ieee_2Efloat_Exponent_fupd : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27t.nonempty\ A_27t \Rightarrow \forall A_27w.nonempty\ A_27w \Rightarrow \forall A_27x.nonempty\ A_27x \Rightarrow c_2Ebinary_ieee_2Efloat_Exponent_fupd\ A_27t\ A_27w\ A_27x \in (((ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27x)^{(ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27w)})) \quad (4)$$

Let $c_2Ebinary_ieee_2Efloat_Significand : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27t.nonempty\ A_27t \Rightarrow \forall A_27w.nonempty\ A_27w \Rightarrow c_2Ebinary_ieee_2Efloat_Significand\ A_27t\ A_27w \in ((ty_2EfcP_2Ecart\ 2\ A_27t)^{(ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27w)}) \quad (5)$$

Let $c_2Ebinary_ieee_2Efloat_Exponent : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27t.nonempty\ A_27t \Rightarrow \forall A_27w.nonempty\ A_27w \Rightarrow c_2Ebinary_ieee_2Efloat_Exponent\ A_27t\ A_27w \in ((ty_2EfcP_2Ecart\ 2\ A_27w)^{(ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27w)}) \quad (6)$$

Let $ty_2Eone_2Eone : \iota$ be given. Assume the following.

$$nonempty\ ty_2Eone_2Eone \quad (7)$$

Let $c_2Ebinary_ieee_2Efloat_Sign : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27t.nonempty\ A_27t \Rightarrow \forall A_27w.nonempty\ A_27w \Rightarrow c_2Ebinary_ieee_2Efloat_Sign\ A_27t\ A_27w \in ((ty_2EfcP_2Ecart\ 2\ ty_2Eone_2Eone)^{(ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27w)}) \quad (8)$$

Let $c_2Ebinary_ieee_2Efloat_Sign_fupd : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27t.nonempty\ A_27t \Rightarrow \forall A_27w.nonempty\ A_27w \Rightarrow c_2Ebinary_ieee_2Efloat_Sign_fupd\ A_27t\ A_27w \in (((ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27w)^{(ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27w)})^{(ty_2EfcP_2Ecart\ 2\ ty_2Eone_2Eone)}) \quad (9)$$

Let $ty_2EfcP_2Efinite_image : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty_2EfcP_2Efinite_image\ A0) \quad (10)$$

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 $\iota \Rightarrow \iota$.

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

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty_2Ebool_2Eitself\ A0) \quad (11)$$

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

$$\forall A_27a.nonempty\ A_27a \Rightarrow c_2Ebool_2Ethe_value\ A_27a \in (ty_2Ebool_2Eitself\ A_27a) \quad (12)$$

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

$$nonempty\ ty_2Enum_2Enum \quad (13)$$

Let $c_2EfcP_2Edimindex : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow c_2EfcP_2Edimindex\ A_27a \in (ty_2Enum_2Enum)^{(ty_2Ebool_2Eitself\ A_27a)} \quad (14)$$

Definition 2 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 3 We define c_2Ebool_2E21 to be $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap\ (ap\ (c_2Emin_2E3D\ (2^{A_27a}))\ (\lambda V1x \in 2.V1x))\ (\lambda V2x \in 2.V2x)))$

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.

$$c_2Enum_2EREP_num \in (\omega^{ty_2Enum_2Enum}) \quad (15)$$

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

$$c_2Enum_2ESUC_REP \in (\omega^{\omega}) \quad (16)$$

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

$$c_2Enum_2EABS_num \in (ty_2Enum_2Enum^{\omega}) \quad (17)$$

Definition 8 We define c_2Enum_2ESUC to be $\lambda V0m \in ty_2Enum_2Enum.(ap c_2Enum_2EABS_num (c_2Enum_2ESUC_REP V0m))$

Definition 9 We define $c_2Emin_2E_40$ to be $\lambda A.\lambda P \in 2^A.\mathbf{if} (\exists x \in A.p (ap P x)) \mathbf{then} (the (\lambda x.x \in A \wedge p x))$ of type $\iota \Rightarrow \iota$.

Definition 10 We define $c_2Ebool_2E_3F$ to be $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap V0P (ap (c_2Emin_2E_40) (ap P V0P))))$

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

Definition 12 We define $c_2Ebool_2E_3F_21$ to be $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap (ap c_2Ebool_2E_2F_5C) (ap P V0P))))$

Definition 13 We define $c_2Efcp_2Efinite_index$ to be $\lambda A_27a : \iota.(ap (c_2Emin_2E_40) (A_27a^{ty_2Enum_2Enum}))$

Let $c_2Efcp_2Edest_cart : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Efcp_2Edest_cart \\ A_27a\ A_27b \in ((A_27a^{(ty_2Efcp_2Efinite_image\ A_27b)})^{(ty_2Efcp_2Ecart\ A_27a\ A_27b)}) \end{aligned} \quad (18)$$

Definition 14 We define $c_2Efcp_2Efcp_index$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0x \in (ty_2Efcp_2Ecart\ A_27a\ A_27b).(ap (c_2Efcp_2Efcp_index) (ap V0x (ap A_27a)))$

Definition 15 We define c_2Efcp_2EFCP to be $\lambda A_27a : \iota.\lambda A_27b : \iota.(\lambda V0g \in (A_27a^{ty_2Enum_2Enum}).(ap (c_2Efcp_2EFCP) (ap V0g (ap A_27a))))$

Definition 16 We define $c_2Ewords_2Eword_1comp$ to be $\lambda A_27a : \iota.\lambda V0w \in (ty_2Efcp_2Ecart\ 2\ A_27a).(ap (c_2Eword_1comp) (ap V0w (ap A_27a)))$

Definition 17 We define $c_2Ecombin_2EK$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.(\lambda V0x \in A_27a.(\lambda V1y \in A_27b.V0x))$

Definition 18 We define $c_2Ebinary_ieee_2Efloat_negate$ to be $\lambda A_27t : \iota.\lambda A_27w : \iota.\lambda V0x \in (ty_2Ebinary_ieee_2Efloat\ A_27t\ A_27w).(ap (c_2Ebinary_ieee_2Efloat_negate) (ap V0x (ap A_27w)))$

Definition 19 We define $c_2Ecombin_2Eo$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda A_27c : \iota.\lambda V0f \in (A_27b^{A_27c}).\lambda V1g \in (A_27c^{A_27a}).(ap (c_2Ecombin_2Eo) (ap V1g (ap V0f (ap A_27a))))$

Assume the following.

$$\begin{aligned}
& \forall A_{.27t}.nonempty\ A_{.27t} \Rightarrow \forall A_{.27u}.nonempty\ A_{.27u} \Rightarrow \forall A_{.27w}. \\
& \quad nonempty\ A_{.27w} \Rightarrow \forall A_{.27x}.nonempty\ A_{.27x} \Rightarrow ((\forall V0f0 \in \\
& \quad ((ty_2EfcP_2Ecart\ 2\ A_{.27x})^{(ty_2EfcP_2Ecart\ 2\ A_{.27w})}).(\forall V1f \in \\
& \quad (ty_2EbinaRy_ieee_2Efloat\ A_{.27t}\ A_{.27w}).((ap\ (c_2EbinaRy_ieee_2Efloat_Sign \\
& \quad A_{.27t}\ A_{.27x})\ (ap\ (ap\ (c_2EbinaRy_ieee_2Efloat_Exponent_fupd \\
& \quad A_{.27t}\ A_{.27w}\ A_{.27x})\ V0f0)\ V1f)) = (ap\ (c_2EbinaRy_ieee_2Efloat_Sign \\
& \quad A_{.27t}\ A_{.27w})\ V1f)))) \wedge ((\forall V2f0 \in ((ty_2EfcP_2Ecart\ 2\ A_{.27u})^{(ty_2EfcP_2Ecart\ 2\ A_{.27t})}). \\
& \quad (\forall V3f \in (ty_2EbinaRy_ieee_2Efloat\ A_{.27t}\ A_{.27w}).((ap\ (\\
& \quad c_2EbinaRy_ieee_2Efloat_Sign\ A_{.27u}\ A_{.27w})\ (ap\ (ap\ (c_2EbinaRy_ieee_2Efloat_Significand_fupd \\
& \quad A_{.27t}\ A_{.27u}\ A_{.27w})\ V2f0)\ V3f)) = (ap\ (c_2EbinaRy_ieee_2Efloat_Sign \\
& \quad A_{.27t}\ A_{.27w})\ V3f)))) \wedge ((\forall V4f0 \in ((ty_2EfcP_2Ecart\ 2\ ty_2Eone_2Eone)^{(ty_2EfcP_2Ecart\ 2\ ty_2Eone_2Eone)}. \\
& \quad (\forall V5f \in (ty_2EbinaRy_ieee_2Efloat\ A_{.27t}\ A_{.27w}).((ap\ (\\
& \quad c_2EbinaRy_ieee_2Efloat_Exponent\ A_{.27t}\ A_{.27w})\ (ap\ (ap\ (c_2EbinaRy_ieee_2Efloat_Sign_fupd \\
& \quad A_{.27t}\ A_{.27w})\ V4f0)\ V5f)) = (ap\ (c_2EbinaRy_ieee_2Efloat_Exponent \\
& \quad A_{.27t}\ A_{.27w})\ V5f)))) \wedge ((\forall V6f0 \in ((ty_2EfcP_2Ecart\ 2\ A_{.27u})^{(ty_2EfcP_2Ecart\ 2\ A_{.27t})}). \\
& \quad (\forall V7f \in (ty_2EbinaRy_ieee_2Efloat\ A_{.27t}\ A_{.27w}).((ap\ (\\
& \quad c_2EbinaRy_ieee_2Efloat_Exponent\ A_{.27u}\ A_{.27w})\ (ap\ (ap\ (c_2EbinaRy_ieee_2Efloat_Significand_fupd \\
& \quad A_{.27t}\ A_{.27u}\ A_{.27w})\ V6f0)\ V7f)) = (ap\ (c_2EbinaRy_ieee_2Efloat_Exponent \\
& \quad A_{.27t}\ A_{.27w})\ V7f)))) \wedge ((\forall V8f0 \in ((ty_2EfcP_2Ecart\ 2\ ty_2Eone_2Eone)^{(ty_2EfcP_2Ecart\ 2\ ty_2Eone_2Eone)}. \\
& \quad (\forall V9f \in (ty_2EbinaRy_ieee_2Efloat\ A_{.27t}\ A_{.27w}).((ap\ (\\
& \quad c_2EbinaRy_ieee_2Efloat_Significand\ A_{.27t}\ A_{.27w})\ (ap\ (ap\ (\\
& \quad c_2EbinaRy_ieee_2Efloat_Sign_fupd\ A_{.27t}\ A_{.27w})\ V8f0)\ V9f)) = \\
& \quad (ap\ (c_2EbinaRy_ieee_2Efloat_Significand\ A_{.27t}\ A_{.27w})\ V9f)))) \wedge \\
& \quad ((\forall V10f0 \in ((ty_2EfcP_2Ecart\ 2\ A_{.27x})^{(ty_2EfcP_2Ecart\ 2\ A_{.27w})}). \\
& \quad (\forall V11f \in (ty_2EbinaRy_ieee_2Efloat\ A_{.27t}\ A_{.27w}).((ap\ \\
& \quad (c_2EbinaRy_ieee_2Efloat_Significand\ A_{.27t}\ A_{.27x})\ (ap\ (ap\ \\
& \quad (c_2EbinaRy_ieee_2Efloat_Exponent_fupd\ A_{.27t}\ A_{.27w}\ A_{.27x}) \\
& \quad V10f0)\ V11f)) = (ap\ (c_2EbinaRy_ieee_2Efloat_Significand\ A_{.27t} \\
& \quad A_{.27w})\ V11f)))) \wedge ((\forall V12f0 \in ((ty_2EfcP_2Ecart\ 2\ ty_2Eone_2Eone)^{(ty_2EfcP_2Ecart\ 2\ ty_2Eone_2Eone)}. \\
& \quad (\forall V13f \in (ty_2EbinaRy_ieee_2Efloat\ A_{.27t}\ A_{.27w}).((ap\ \\
& \quad (c_2EbinaRy_ieee_2Efloat_Sign\ A_{.27t}\ A_{.27w})\ (ap\ (ap\ (c_2EbinaRy_ieee_2Efloat_Sign_fupd \\
& \quad A_{.27t}\ A_{.27w})\ V12f0)\ V13f)) = (ap\ V12f0\ (ap\ (c_2EbinaRy_ieee_2Efloat_Sign \\
& \quad A_{.27t}\ A_{.27w})\ V13f)))) \wedge ((\forall V14f0 \in ((ty_2EfcP_2Ecart\ 2 \\
& \quad A_{.27x})^{(ty_2EfcP_2Ecart\ 2\ A_{.27w})}).(\forall V15f \in (ty_2EbinaRy_ieee_2Efloat \\
& \quad A_{.27t}\ A_{.27w}).((ap\ (c_2EbinaRy_ieee_2Efloat_Exponent\ A_{.27t} \\
& \quad A_{.27x})\ (ap\ (ap\ (c_2EbinaRy_ieee_2Efloat_Exponent_fupd\ A_{.27t} \\
& \quad A_{.27w}\ A_{.27x})\ V14f0)\ V15f)) = (ap\ V14f0\ (ap\ (c_2EbinaRy_ieee_2Efloat_Exponent \\
& \quad A_{.27t}\ A_{.27w})\ V15f)))) \wedge ((\forall V16f0 \in ((ty_2EfcP_2Ecart\ 2\ A_{.27u})^{(ty_2EfcP_2Ecart\ 2\ A_{.27t})}). \\
& \quad (\forall V17f \in (ty_2EbinaRy_ieee_2Efloat\ A_{.27t}\ A_{.27w}).((ap\ \\
& \quad (c_2EbinaRy_ieee_2Efloat_Significand\ A_{.27u}\ A_{.27w})\ (ap\ (ap\ \\
& \quad (c_2EbinaRy_ieee_2Efloat_Significand_fupd\ A_{.27t}\ A_{.27u}\ A_{.27w}) \\
& \quad V16f0)\ V17f)) = (ap\ V16f0\ (ap\ (c_2EbinaRy_ieee_2Efloat_Significand \\
& \quad A_{.27t}\ A_{.27w})\ V17f)))))))))))))
\end{aligned} \tag{19}$$

Assume the following.

$$\begin{aligned}
& \forall A.27t.nonempty\ A.27t \Rightarrow \forall A.27u.nonempty\ A.27u \Rightarrow \forall A.27v. \\
& nonempty\ A.27v \Rightarrow \forall A.27w.nonempty\ A.27w \Rightarrow \forall A.27x.nonempty \\
& A.27x \Rightarrow \forall A.27y.nonempty\ A.27y \Rightarrow ((\forall V0g \in ((ty.2Efc2Ecart \\
& 2\ ty.2Eone.2Eone)^{(ty.2Efc2Ecart\ 2\ ty.2Eone.2Eone)}), (\forall V1f0 \in \\
& ((ty.2Efc2Ecart\ 2\ ty.2Eone.2Eone)^{(ty.2Efc2Ecart\ 2\ ty.2Eone.2Eone)}), \\
& (\forall V2f \in (ty.2Ebinary_ieee.2Efloat\ A.27t\ A.27w)).((ap\ (\\
& ap\ (c.2Ebinary_ieee.2Efloat_Sign_fupd\ A.27t\ A.27w)\ V1f0) \\
& (ap\ (ap\ (c.2Ebinary_ieee.2Efloat_Sign_fupd\ A.27t\ A.27w)\ V0g) \\
& V2f))) = (ap\ (ap\ (c.2Ebinary_ieee.2Efloat_Sign_fupd\ A.27t\ A.27w) \\
& (ap\ (ap\ (c.2Ecombin.2Eo\ (ty.2Efc2Ecart\ 2\ ty.2Eone.2Eone)\ (\\
& ty.2Efc2Ecart\ 2\ ty.2Eone.2Eone)\ (ty.2Efc2Ecart\ 2\ ty.2Eone.2Eone)) \\
& V1f0)\ V0g))\ V2f)))) \wedge ((\forall V3g \in ((ty.2Efc2Ecart\ 2\ A.27x)^{(ty.2Efc2Ecart\ 2\ A.27w)}), \\
& (\forall V4f0 \in ((ty.2Efc2Ecart\ 2\ A.27y)^{(ty.2Efc2Ecart\ 2\ A.27x)}), \\
& (\forall V5f \in (ty.2Ebinary_ieee.2Efloat\ A.27t\ A.27w)).((ap\ (\\
& ap\ (c.2Ebinary_ieee.2Efloat_Exponent_fupd\ A.27t\ A.27x\ A.27y) \\
& V4f0)\ (ap\ (ap\ (c.2Ebinary_ieee.2Efloat_Exponent_fupd\ A.27t \\
& A.27w\ A.27x)\ V3g)\ V5f))) = (ap\ (ap\ (c.2Ebinary_ieee.2Efloat_Exponent_fupd \\
& A.27t\ A.27w\ A.27y)\ (ap\ (ap\ (c.2Ecombin.2Eo\ (ty.2Efc2Ecart\ 2 \\
& A.27w)\ (ty.2Efc2Ecart\ 2\ A.27y)\ (ty.2Efc2Ecart\ 2\ A.27x)) \\
& V4f0)\ V3g))\ V5f)))) \wedge ((\forall V6g \in ((ty.2Efc2Ecart\ 2\ A.27u)^{(ty.2Efc2Ecart\ 2\ A.27t)}), \\
& (\forall V7f0 \in ((ty.2Efc2Ecart\ 2\ A.27v)^{(ty.2Efc2Ecart\ 2\ A.27u)}), \\
& (\forall V8f \in (ty.2Ebinary_ieee.2Efloat\ A.27t\ A.27w)).((ap\ (\\
& ap\ (c.2Ebinary_ieee.2Efloat_Significand_fupd\ A.27u\ A.27v \\
& A.27w)\ V7f0)\ (ap\ (ap\ (c.2Ebinary_ieee.2Efloat_Significand_fupd \\
& A.27t\ A.27u\ A.27w)\ V6g)\ V8f))) = (ap\ (ap\ (c.2Ebinary_ieee.2Efloat_Significand_fupd \\
& A.27t\ A.27v\ A.27w)\ (ap\ (ap\ (c.2Ecombin.2Eo\ (ty.2Efc2Ecart\ 2 \\
& A.27t)\ (ty.2Efc2Ecart\ 2\ A.27v)\ (ty.2Efc2Ecart\ 2\ A.27u)) \\
& V7f0)\ V6g))\ V8f))))))
\end{aligned} \tag{20}$$

Assume the following.

$$\begin{aligned}
& \forall A.27t.nonempty\ A.27t \Rightarrow \forall A.27w.nonempty\ A.27w \Rightarrow (\\
& \forall V0f1 \in (ty.2Ebinary_ieee.2Efloat\ A.27t\ A.27w).(\forall V1f2 \in \\
& (ty.2Ebinary_ieee.2Efloat\ A.27t\ A.27w).((V0f1 = V1f2) \Leftrightarrow ((ap \\
& (c.2Ebinary_ieee.2Efloat_Sign\ A.27t\ A.27w)\ V0f1) = (ap\ (c.2Ebinary_ieee.2Efloat_Sign \\
& A.27t\ A.27w)\ V1f2)) \wedge ((ap\ (c.2Ebinary_ieee.2Efloat_Exponent \\
& A.27t\ A.27w)\ V0f1) = (ap\ (c.2Ebinary_ieee.2Efloat_Exponent \\
& A.27t\ A.27w)\ V1f2)) \wedge ((ap\ (c.2Ebinary_ieee.2Efloat_Significand \\
& A.27t\ A.27w)\ V0f1) = (ap\ (c.2Ebinary_ieee.2Efloat_Significand \\
& A.27t\ A.27w)\ V1f2))))))
\end{aligned} \tag{21}$$

Assume the following.

$$True \tag{22}$$

Assume the following.

$$\forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0t \in 2.((\forall V1x \in A.27a.(p\ V0t)) \Leftrightarrow (p\ V0t))) \quad (23)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2.(((True \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)) \wedge (((p\ V0t) \wedge True) \Leftrightarrow \\ & (p\ V0t)) \wedge (((False \wedge (p\ V0t)) \Leftrightarrow False) \wedge (((p\ V0t) \wedge False) \Leftrightarrow False) \wedge \\ & (((p\ V0t) \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)))))) \end{aligned} \quad (24)$$

Assume the following.

$$\forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0x \in A.27a.((V0x = V0x) \Leftrightarrow True)) \quad (25)$$

Assume the following.

$$\forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\forall V0x \in A.27a.(\forall V1y \in A.27b.((ap\ (ap\ (c.2Ecombin_2EK\ A.27a\ A.27b)\ V0x)\ V1y) = V0x))) \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow \forall A.27c. \\ & nonempty\ A.27c \Rightarrow \forall A.27d.nonempty\ A.27d \Rightarrow \forall A.27e.nonempty \\ & A.27e \Rightarrow \forall A.27f.nonempty\ A.27f \Rightarrow ((\forall V0f \in (A.27b^{A.27a}). \\ & (\forall V1v \in A.27c.((ap\ (ap\ (c.2Ecombin_2Eo\ A.27a\ A.27c\ A.27b) \\ & (ap\ (c.2Ecombin_2EK\ A.27c\ A.27b)\ V1v))\ V0f) = (ap\ (c.2Ecombin_2EK \\ & A.27c\ A.27a)\ V1v)))) \wedge (\forall V2f \in (A.27e^{A.27d}).(\forall V3v \in \\ & A.27d.((ap\ (ap\ (c.2Ecombin_2Eo\ A.27f\ A.27e\ A.27d)\ V2f)\ (ap\ (c.2Ecombin_2EK \\ & A.27d\ A.27f)\ V3v)) = (ap\ (c.2Ecombin_2EK\ A.27e\ A.27f)\ (ap\ V2f\ V3v)))))) \end{aligned} \quad (27)$$

Assume the following.

$$\forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0a \in (ty_2EfcP_2Ecart\ 2\ A.27a).((ap\ (c.2Ewords_2Eword_1comp\ A.27a)\ (ap\ (c.2Ewords_2Eword_1comp\ A.27a)\ V0a)) = V0a)) \quad (28)$$

Theorem 1

$$\forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\forall V0x \in (ty_2Ebinary_ieee_2Efloat\ A.27a\ A.27b).((ap\ (c.2Ebinary_ieee_2Efloat_negate\ A.27a\ A.27b)\ (ap\ (c.2Ebinary_ieee_2Efloat_negate\ A.27a\ A.27b)\ V0x)) = V0x))$$