thm_2Ebinary__ieee_2Efloat__compare__EQ__float__compare (TMWeGsdsaMc8zVEktt4FcM5vPAbd26W4683)

October 26, 2020

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

$$nonempty\ ty\_2Enum\_2Enum \quad (1)$$

Let $ty\_2Ebinary\_\_ieee\_2Efloat\_\_compare : \iota$ be given. Assume the following.

$$nonempty\ ty\_2Ebinary\_\_ieee\_2Efloat\_\_compare \quad (2)$$

Let $c\_2Ebinary\_\_ieee\_2Efloat\_\_compare2num : \iota$ be given. Assume the following.

$$c\_2Ebinary\_\_ieee\_2Efloat\_\_compare2num \in (ty\_2Enum\_2Enum^{ty\_2Ebinary\_\_ieee\_2Efloat\_\_compare}) \quad (3)$$

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* $(ap\ (ap\ (c\_2Emin\_2E\_3D\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1$

Definition 3 *We define* c_2Ebool_2E_21 *to be* $\lambda A\_27a : \iota.(\lambda V0P \in (2^{A\_27a}).(ap\ (ap\ (c\_2Emin\_2E\_3D\ (2^{A\_27}$

Assume the following.

$$(\forall V0a \in ty\_2Ebinary\_\_ieee\_2Efloat\_\_compare.(\forall V1a\_27 \in ty\_2Ebinary\_\_ieee\_2Efloat\_\_compare.(((ap\ c\_2Ebinary\_\_ieee\_2Efloat\_\_compare2num\ V0a) = (ap\ c\_2Ebinary\_\_ieee\_2Efloat\_\_compare2num\ V1a\_27)) \Leftrightarrow (V0a = V1a\_27)))) \quad (4)$$

Assume the following.

$$\forall A\_27a.nonempty\ A\_27a \Rightarrow (\forall V0x \in A\_27a.(\forall V1y \in A\_27a.((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \quad (5)$$

Theorem 1

$$(\forall V0a \in ty\_2Ebinary\_\_ieee\_2Efloat\_\_compare.(\forall V1a\_27 \in ty\_2Ebinary\_\_ieee\_2Efloat\_\_compare.((V0a = V1a\_27) \Leftrightarrow ((ap\ c\_2Ebinary\_\_ieee\_2Efloat\_\_compare2num\ V0a) = (ap\ c\_2Ebinary\_\_ieee\_2Efloat\_\_compare2num\ V1a\_27)))))$$