thm_2Ebinary__ieee_2Edatatype__flags (TMQpGfjLnCfBfT-bVZ3CbqgqBDeMK6eykpCU)

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Let $ty_2Ebinary__ieee_2Eflags : \iota$ be given. Assume the following.

$$nonempty\ ty_2Ebinary__ieee_2Eflags \tag{1}$$

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* $\iota \Rightarrow \iota$.

Definition 2 *We define* c_2Ebool_2ET *to be* $(ap\ (ap\ (\text{c_2Emin_2E_3D}\ (2^2))\ (\lambda V0x \in 2.V0x))\ (\lambda V1x \in 2.V1$

Definition 3 *We define* c_2Ebool_2EDATATYPE *to be* $\lambda A_27a : \iota.(\lambda V0x \in A_27a.\text{c_2Ebool_2ET})$.

Definition 4 *We define* c_2Ebool_2E_21 *to be* $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap\ (ap\ (\text{c_2Emin_2E_3D}\ (2^{A_27$

Assume the following.

$$True \tag{2}$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a.((p\ (ap\ (\text{c_2Ebool_2EDATATYPE}\ A_27a)\ V0x)) \Leftrightarrow True)) \tag{3}$$

Theorem 1

$$(\forall V0record \in (((((((2^2)^2)^2)^2)^2)^2)^{ty_2Ebinary__ieee_2Eflags}).\ (\forall V1flags \in ty_2Ebinary__ieee_2Eflags.(\forall V2DivideByZero \in 2.(\forall V3InvalidOp \in 2.(\forall V4Overflow \in 2.(\forall V5Precision \in 2.(\forall V6Underflow__BeforeRounding \in 2.(\forall V7Underflow__AfterRounding \in 2.(p\ (ap\ (\text{c_2Ebool_2EDATATYPE}\ 2)\ (ap\ (ap\ (ap\ (ap\ (ap\ (ap\ (ap\ V0record\ V1flags)\ V2DivideByZero)\ V3InvalidOp)\ V4Overflow)\ V5Precision)\ V6Underflow__BeforeRounding)\ V7Underflow__AfterRounding)))))))))))$$