

# thm\_2Etransfer\_2EFUN\_REL\_ABS (TMM- mjmYodFbV3GavSnqjoHXoHgQdLd1G56x)

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**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_2E_7E` to be  $(ap (ap (c_2Emin_2E_3D (2^2)) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x))$

**Definition 3** We define `c_2Ebool_2E_21` to be  $\lambda A_{27a} : \iota.(\lambda V0P \in (2^{A_{27a}}).(ap (ap (c_2Emin_2E_3D (2^{A_{27a}})) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x)) P))$

**Definition 4** We define `c_2Ebool_2E_7E` 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  $\iota$ .

**Definition 6** We define `c_2Ebool_2E_7E` to be  $(\lambda V0t \in 2.(ap (ap c_2Emin_2E_3D_3D_3E V0t) c_2Ebool_2E_7E))$

**Definition 7** We define `c_2Ebool_2E_2F_5C` to be  $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_2Ebool_2E_21 2) (\lambda V2t \in 2.V2t)) V0t1))$

**Definition 8** We define `c_2Etransfer_2EFUN_REL` to be  $\lambda A_{27a} : \iota.\lambda A_{27b} : \iota.\lambda A_{27c} : \iota.\lambda A_{27d} : \iota.\lambda V0A_{27a} \in 2.V0A_{27a}.$

Assume the following.

$$True \tag{1}$$

Assume the following.

$$\forall A_{27a}.nonempty A_{27a} \Rightarrow (\forall V0t \in 2.((\forall V1x \in A_{27a}.(p V0t)) \Leftrightarrow (p V0t))) \tag{2}$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2.(((True \Rightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Rightarrow True) \Leftrightarrow \\ & True) \wedge (((False \Rightarrow (p V0t)) \Leftrightarrow True) \wedge (((p V0t) \Rightarrow (p V0t)) \Leftrightarrow True) \wedge (( \\ & (p V0t) \Rightarrow False) \Leftrightarrow (\neg (p V0t)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall A_{27a}.nonempty A_{27a} \Rightarrow (\forall V0x \in A_{27a}.(\forall V1y \in A_{27a}.((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \tag{4}$$

Assume the following.

$$(\forall V0t \in 2.(((True \Leftrightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Leftrightarrow True) \Leftrightarrow (p V0t)) \wedge (((False \Leftrightarrow (p V0t)) \Leftrightarrow (\neg(p V0t))) \wedge (((p V0t) \Leftrightarrow False) \Leftrightarrow (\neg(p V0t)))))) \quad (5)$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(\forall V2t3 \in 2.(((p V0t1) \Rightarrow ((p V1t2) \Rightarrow (p V2t3))) \Leftrightarrow (((p V0t1) \wedge (p V1t2)) \Rightarrow (p V2t3)))))) \quad (6)$$

Assume the following.

$$(\forall V0x \in 2.(\forall V1x.27 \in 2.(\forall V2y \in 2.(\forall V3y.27 \in 2.(((p V0x) \Leftrightarrow (p V1x.27)) \wedge ((p V1x.27) \Rightarrow ((p V2y) \Leftrightarrow (p V3y.27)))) \Rightarrow (((p V0x) \Rightarrow (p V2y)) \Leftrightarrow ((p V1x.27) \Rightarrow (p V3y.27)))))) \quad (7)$$

**Theorem 1**

$$\begin{aligned} & \forall A.27a.nonempty A.27a \Rightarrow \forall A.27b.nonempty A.27b \Rightarrow \forall A.27c. \\ & nonempty A.27c \Rightarrow \forall A.27d.nonempty A.27d \Rightarrow (\forall V0AB \in ( \\ & (2^{A.27b})^{A.27a}).(\forall V1CD \in ((2^{A.27d})^{A.27c}).(\forall V2f \in \\ & (A.27c)^{A.27a}).(\forall V3g \in (A.27d)^{A.27b}).((\forall V4a \in A.27a. \\ & (\forall V5b \in A.27b.((p (ap (ap V0AB V4a) V5b)) \Rightarrow (p (ap (ap V1CD (ap \\ & V2f V4a)) (ap V3g V5b)))))) \Rightarrow (p (ap (ap (ap (ap (c.2Etransfer_2EFUN_REL \\ & A.27a A.27b A.27c A.27d) V0AB) V1CD) (\lambda V6a \in A.27a.(ap V2f V6a))) \\ & (\lambda V7b \in A.27b.(ap V3g V7b)))))))))) \end{aligned}$$