

thm_2Equotient_2ERESPECTS__REP__ABS (TMTEnvdH55wT7Pkioc3vgzoaNzCMgGAGfqr)

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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_2ET 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 $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap (ap (c_2Emin_2E_3D (2^{A_27a}))$

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 $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_2Ebool_2E_21 2) (\lambda V2t \in 2.V2t$

Definition 8 We define $c_2Equotient_2EQUOTIENT$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0R \in ((2^{A_27a})^{A_27a}).\lambda V0$

Definition 9 We define $c_2Equotient_2E_3D_3D_3D_3E$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0R1 \in ((2^{A_27a})^{A_27a}).\lambda V0R2 \in$

Definition 10 We define $c_2Ecombin_2EW$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.(\lambda V0f \in ((A_27b^{A_27a})^{A_27a}).(\lambda V1x \in A_27a$

Definition 11 We define $c_2Equotient_2ERespects$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.(c_2Ecombin_2EW A_27a A_27b)$

Assume the following.

$$True \tag{1}$$

Assume the following.

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

Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\
& \quad \forall V0R \in ((2^{A_27a})^{A_27a}). (\forall V1abs \in (A_27b^{A_27a}). \\
& (\forall V2rep \in (A_27a^{A_27b}). ((p\ (ap\ (ap\ (ap\ (c_2Equotient_2EQUOTIENT \\
& \quad A_27a\ A_27b)\ V0R)\ V1abs)\ V2rep))) \Rightarrow (\forall V3r \in A_27a. ((p\ (ap\ (ap \\
& \quad V0R\ V3r)\ V3r))) \Rightarrow (p\ (ap\ (ap\ V0R\ (ap\ V2rep\ (ap\ V1abs\ V3r)))\ V3r)))))) \\
& \hspace{15em} (4)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\
& \quad \forall V0R1 \in ((2^{A_27a})^{A_27a}). (\forall V1R2 \in ((2^{A_27b})^{A_27b}). \\
& \quad (\forall V2f \in (A_27b^{A_27a}). (\forall V3x \in A_27a. (\forall V4y \in \\
& \quad A_27a. (((p\ (ap\ (ap\ (c_2Equotient_2Erespects\ (A_27b^{A_27a})\ 2) \\
& \quad (ap\ (ap\ (c_2Equotient_2E_3D_3D_3D_3E\ A_27a\ A_27b)\ V0R1)\ V1R2)) \\
& \quad V2f))) \wedge (p\ (ap\ (ap\ V0R1\ V3x)\ V4y)))) \Rightarrow (p\ (ap\ (ap\ V1R2\ (ap\ V2f\ V3x))\ (ap \\
& \quad V2f\ V4y)))))) \\
& \hspace{15em} (5)
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow \forall A_27c. \\
& \quad nonempty\ A_27c \Rightarrow (\forall V0R1 \in ((2^{A_27a})^{A_27a}). (\forall V1abs1 \in \\
& (A_27c^{A_27a}). (\forall V2rep1 \in (A_27a^{A_27c}). ((p\ (ap\ (ap\ (ap\ (c_2Equotient_2EQUOTIENT \\
& \quad A_27a\ A_27c)\ V0R1)\ V1abs1)\ V2rep1))) \Rightarrow (\forall V3R2 \in ((2^{A_27b})^{A_27b}). \\
& (\forall V4f \in (A_27b^{A_27a}). (\forall V5x \in A_27a. (((p\ (ap\ (ap\ (c_2Equotient_2Erespects \\
& \quad (A_27b^{A_27a})\ 2)\ (ap\ (ap\ (c_2Equotient_2E_3D_3D_3D_3E\ A_27a\ A_27b) \\
& \quad V0R1)\ V3R2))\ V4f))) \wedge (p\ (ap\ (ap\ V0R1\ V5x)\ V5x)))) \Rightarrow (p\ (ap\ (ap\ V3R2\ (ap \\
& \quad V4f\ (ap\ V2rep1\ (ap\ V1abs1\ V5x)))\ (ap\ V4f\ V5x)))))) \\
& \hspace{15em}
\end{aligned}$$