

t39_circrm1

(TMPgE5kjbrQquQZ4WnSz3PY2Me5u8ucBKfv)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v4_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r5_circrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_funct_1 : \iota \Rightarrow \iota$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $r4_circrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_pua2mss1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v2_funct_1 X0) \Rightarrow (k2_funct_1 (k2_funct_1 X0) = X0)) \quad (1)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v1_relat_1 (k2_funct_1 X0)) \wedge (v1_funct_1 (k2_funct_1 X0))) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow (\forall X4.((v4_msualg_1 X4 X0) \wedge (l3_msualg_1 X4 X0)) \Rightarrow (\\ & \forall X5.((v4_msualg_1 X5 X1) \wedge (l3_msualg_1 X5 X1)) \Rightarrow ((r5_circrm1 X0 X1 X2 X3 X4 X5) \Leftrightarrow ((r4_circrm1 X0 X1 X2 X3 X4 X5) \wedge (r4_circrm1 X1 X0 (k2_funct_1 X2) (k2_funct_1 X3) X5 X4)))))))))) \quad (3) \end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 \\
& X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 \\
& X3)) \Rightarrow (\forall X4.((v4_msualg_1 X4 X0) \wedge (l3_msualg_1 X4 X0)) \Rightarrow (\\
& \forall X5.((v4_msualg_1 X5 X1) \wedge (l3_msualg_1 X5 X1)) \Rightarrow ((r4_circtrm1 \\
& X0 X1 X2 X3 X4 X5) \Leftrightarrow ((v2_funct_1 X2) \wedge ((v2_funct_1 X3) \wedge ((r3_pua2mss1 \\
& X0 X1 X2 X3) \wedge ((u3_msualg_1 X0 X4 = k3_relat_1 X2 (u3_msualg_1 X1 X5)) \wedge \\
& (u4_msualg_1 X0 X4 = k3_relat_1 X3 (u4_msualg_1 X1 X5))))))))))))) \\
& \tag{4}
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 \\
& X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 \\
& X3)) \Rightarrow (\forall X4.((v4_msualg_1 X4 X0) \wedge (l3_msualg_1 X4 X0)) \Rightarrow (\\
& \forall X5.((v4_msualg_1 X5 X1) \wedge (l3_msualg_1 X5 X1)) \Rightarrow ((r5_circtrm1 \\
& X0 X1 X2 X3 X4 X5) \Rightarrow (r5_circtrm1 X1 X0 (k2_funct_1 X2) (k2_funct_1 \\
& X3) X5 X4)))))))))
\end{aligned}$$