

t27_circrm1 (TMchEpXSkRVXoCPkLB- SUit4KATZBdBfTTm)

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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 $r1_circrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $k2_funct_1 : \iota \Rightarrow \iota$ be given. Let $r3_pua2mss1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (((v2_funct_1 X0) \wedge (v2_funct_1 \\ X1)) \Rightarrow (k2_funct_1 (k3_relat_1 X0 X1) = k3_relat_1 (k2_funct_1 X1) \\ (k2_funct_1 X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_msualg_1 X0) \Rightarrow (\forall X1.(l1_msualg_1 X1) \Rightarrow (\forall X2. \\ (l1_msualg_1 X2) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow \\ (\forall X4.((v1_relat_1 X4) \wedge (v1_funct_1 X4)) \Rightarrow (\forall X5.(\\ (v1_relat_1 X5) \wedge (v1_funct_1 X5)) \Rightarrow (\forall X6.((v1_relat_1 X6) \wedge \\ (v1_funct_1 X6)) \Rightarrow (((r3_pua2mss1 X0 X1 X3 X5) \wedge (r3_pua2mss1 X1 X2 \\ X4 X6)) \Rightarrow (r3_pua2mss1 X0 X2 (k3_relat_1 X3 X4) (k3_relat_1 X5 X6)))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v2_funct_1 \\ X0))) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v2_funct_1 X1)))) \Rightarrow \\ ((v1_relat_1 (k3_relat_1 X0 X1)) \wedge (v2_funct_1 (k3_relat_1 X0 X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \wedge ((\\ v1_relat_1 X1) \wedge (v1_funct_1 X1))) \Rightarrow ((v1_relat_1 (k3_relat_1 X0 \\ X1)) \wedge (v1_funct_1 (k3_relat_1 X0 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.v1_relat_1 (k3_relat_1 X0 X1) \quad (5)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v1_relat_1 (k2_funct_1 X0)) \wedge (v1_funct_1 (k2_funct_1 X0))) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow ((r1_circtrm1 X0 X1 X2 X3) \Leftrightarrow ((v2_funct_1 X2) \wedge ((v2_funct_1 X3) \wedge ((r3_pua2mss1 X0 X1 X2 X3) \wedge (r3_pua2mss1 X1 X0 (k2_funct_1 X2) (k2_funct_1 X3)))))))))) \end{aligned} \quad (7)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge (l1_msualg_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow (\forall X4.((v1_relat_1 X4) \wedge (v1_funct_1 X4)) \Rightarrow (\forall X5. \\ & ((v1_relat_1 X5) \wedge (v1_funct_1 X5)) \Rightarrow (\forall X6.((v1_relat_1 X6) \wedge (v1_funct_1 X6)) \Rightarrow (((r1_circtrm1 X0 X1 X3 X4) \wedge (r1_circtrm1 X1 X2 X5 X6)) \Rightarrow (r1_circtrm1 X0 X2 (k3_relat_1 X3 X5) (k3_relat_1 X4 X6)))))))))) \end{aligned}$$