

t53_circترم1 (TM- FWQMFy7gQHGPcAzoi6SF8sHsHeroAF7gi)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v2_msafree2 : \iota \Rightarrow o$ 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 $v4_msafree2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r5_circترم1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_circترم1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_msafree2 : \iota \Rightarrow \iota$ be given. Let $k3_msafree2 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_msafree2 \\
& \quad X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg \\
& \quad v11_struct_0 X1) \wedge ((v2_msafree2 X1) \wedge (l1_msualg_1 X1)))) \Rightarrow (\forall X2. \\
& \quad ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 \\
& \quad X3) \wedge (v1_funct_1 X3)) \Rightarrow (\forall X4.((v4_msualg_1 X4 X0) \wedge ((v4_msafree2 \\
& \quad X4 X0) \wedge (l3_msualg_1 X4 X0))) \Rightarrow (\forall X5.((v4_msualg_1 X5 X1) \wedge \\
& \quad ((v4_msafree2 X5 X1) \wedge (l3_msualg_1 X5 X1))) \Rightarrow ((r5_circترم1 X0 X1 \\
& \quad X2 X3 X4 X5) \Rightarrow ((k7_relat_1 X2 (k2_msafree2 X0) = k2_msafree2 X1) \wedge \\
& \quad (k7_relat_1 X2 (k3_msafree2 X0) = k3_msafree2 X1)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\
& \quad ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 \\
& \quad X2) \wedge (v1_funct_1 X2)) \Rightarrow ((r3_circترم1 X0 X1 X2) \Leftrightarrow (r1_tarski (k7_relat_1 \\
& \quad X2 (k2_msafree2 X0) (k2_msafree2 X1))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. (X0 = X1) \Leftrightarrow ((r1_tarski X0 X1) \wedge (r1_tarski X1 X0)) \tag{3}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_msafree2 \\ & \quad X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg \\ & \quad v11_struct_0 X1) \wedge ((v2_msafree2 X1) \wedge (l1_msualg_1 X1)))) \Rightarrow (\forall X2. \\ & \quad ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 \\ & \quad X3) \wedge (v1_funct_1 X3)) \Rightarrow (\forall X4.((v4_msualg_1 X4 X0) \wedge ((v4_msafree2 \\ & \quad X4 X0) \wedge (l3_msualg_1 X4 X0)))) \Rightarrow (\forall X5.((v4_msualg_1 X5 X1) \wedge \\ & \quad ((v4_msafree2 X5 X1) \wedge (l3_msualg_1 X5 X1)))) \Rightarrow ((r5_circtrm1 X0 X1 \\ & \quad X2 X3 X4 X5) \Rightarrow (r3_circtrm1 X0 X1 X2)))))) \end{aligned}$$