

l13_ringcat1 (TMVyENomvL- WGU7cPFvZCdA7XNby9h53JAwS)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_ringcat1 : \iota \Rightarrow o$ be given. Let $l1_ringcat1 : \iota \Rightarrow o$ be given. Let $k1_ringcat1 : \iota \Rightarrow \iota$ be given. Let $k2_ringcat1 : \iota \Rightarrow \iota$ be given. Let $v1_ringcat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_ringcat1 : \iota \Rightarrow \iota$ be given. Let $u1_ringcat1 : \iota \Rightarrow \iota$ be given. Let $u2_ringcat1 : \iota \Rightarrow \iota$ be given. Let $m1_ringcat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_ringcat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_ringcat1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v3_group_1 X1) \wedge ((v4_vectsp_1 X1) \wedge ((v5_vectsp_1 X1) \wedge (l6_algstr_0 X1)))))))))) \Rightarrow \\
& ((r1_ringcat1 X0 X1) \Rightarrow (\forall X2. ((v2_ringcat1 X2) \wedge ((v3_ringcat1 X2) \wedge (l1_ringcat1 X2)))) \Rightarrow ((m1_ringcat1 X2 X0 X1) \Leftrightarrow ((k1_ringcat1 X2 = X0) \wedge (k2_ringcat1 X2 = X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v3_group_1 X1) \wedge ((v4_vectsp_1 X1) \wedge ((v5_vectsp_1 X1) \wedge (l6_algstr_0 X1)))))))))) \Rightarrow \\
& ((r1_ringcat1 X0 X1) \Leftrightarrow (\exists X2. ((v3_ringcat1 X2) \wedge (l1_ringcat1 X2)) \wedge ((k1_ringcat1 X2 = X0) \wedge (k2_ringcat1 X2 = X1))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. (l1_ringcat1 X0) \Rightarrow ((v3_ringcat1 X0) \Leftrightarrow (v1_ringcat1 (k3_ringcat1 X0) (u1_ringcat1 X0) (u2_ringcat1 X0))) \tag{3}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (v13_algstr_0 X0) \wedge (v2_rlvect_1 \\ & X0) \wedge (v3_rlvect_1 X0) \wedge (v4_rlvect_1 X0) \wedge (v3_group_1 X0) \wedge \\ & (v4_vectsp_1 X0) \wedge (v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))) \Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1) \wedge (v13_algstr_0 X1) \wedge (v2_rlvect_1 \\ & X1) \wedge (v3_rlvect_1 X1) \wedge (v4_rlvect_1 X1) \wedge (v3_group_1 X1) \wedge \\ & (v4_vectsp_1 X1) \wedge (v5_vectsp_1 X1) \wedge (l6_algstr_0 X1)))) \Rightarrow \\ & (\forall X2.((v2_ringcat1 X2) \wedge (l1_ringcat1 X2)) \Rightarrow (((k1_ringcat1 \\ & X2 = X0) \wedge (k2_ringcat1 X2 = X1) \wedge (v1_ringcat1 (k3_ringcat1 X2) (\\ & u1_ringcat1 X2) (u2_ringcat1 X2)))) \Rightarrow (m1_ringcat1 X2 X0 X1)))) \end{aligned}$$