

# l10\_ringcat1

(TMJhcvUZGMbw3MPWLJU4X3hQg2F35o76bX2)

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Let  $v3\_ringcat1 : \iota \Rightarrow o$  be given. Let  $l1\_ringcat1 : \iota \Rightarrow o$  be given. Let  $g1\_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_ringcat1 : \iota \Rightarrow \iota$  be given. Let  $u2\_ringcat1 : \iota \Rightarrow \iota$  be given. Let  $u3\_ringcat1 : \iota \Rightarrow \iota$  be given. 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  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_ringcat1 : \iota \Rightarrow o$  be given. Let  $v1\_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_ringcat1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
& X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge \\
& ((v3\_group\_1 X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 \\
& X0)))))))) \wedge (((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ( \\
& (v4\_vectsp\_1 X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))))) \wedge \\
& ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\
& X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3. \forall X4. \forall X5. \\
& (g1\_ringcat1 X0 X1 X2 = g1\_ringcat1 X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge \\
& (X2 = X5))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (l1\_ringcat1 X0) \Rightarrow ((v1\_funct\_1 (u3\_ringcat1 X0)) \wedge \\
& ((v1\_funct\_2 (u3\_ringcat1 X0) (u1\_struct\_0 (u1\_ringcat1 X0)) \\
& (u1\_struct\_0 (u2\_ringcat1 X0))) \wedge (m1\_subset\_1 (u3\_ringcat1 X0) \\
& (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 (u1\_ringcat1 X0)) (u1\_struct\_0 \\
& (u2\_ringcat1 X0))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_ringcat1\ X0) \Rightarrow & ((\neg v2\_struct\_0\ (u2\_ringcat1\ X0)) \wedge \\ & ((v13\_algstr\_0\ (u2\_ringcat1\ X0)) \wedge (v2\_rlvect\_1\ (u2\_ringcat1 \\ & X0)) \wedge (v3\_rlvect\_1\ (u2\_ringcat1\ X0)) \wedge (v4\_rlvect\_1\ (u2\_ringcat1 \\ & X0)) \wedge (v3\_group\_1\ (u2\_ringcat1\ X0)) \wedge (v4\_vectsp\_1\ (u2\_ringcat1 \\ & X0)) \wedge (v5\_vectsp\_1\ (u2\_ringcat1\ X0)) \wedge (l6\_algstr\_0\ (u2\_ringcat1 \\ & X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_ringcat1\ X0) \Rightarrow & ((\neg v2\_struct\_0\ (u1\_ringcat1\ X0)) \wedge \\ & ((v13\_algstr\_0\ (u1\_ringcat1\ X0)) \wedge (v2\_rlvect\_1\ (u1\_ringcat1 \\ & X0)) \wedge (v3\_rlvect\_1\ (u1\_ringcat1\ X0)) \wedge (v4\_rlvect\_1\ (u1\_ringcat1 \\ & X0)) \wedge (v3\_group\_1\ (u1\_ringcat1\ X0)) \wedge (v4\_vectsp\_1\ (u1\_ringcat1 \\ & X0)) \wedge (v5\_vectsp\_1\ (u1\_ringcat1\ X0)) \wedge (l6\_algstr\_0\ (u1\_ringcat1 \\ & X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2. & (((\neg v2\_struct\_0\ X0) \wedge (v13\_algstr\_0 \\ & X0) \wedge (v2\_rlvect\_1\ X0) \wedge (v3\_rlvect\_1\ X0) \wedge (v4\_rlvect\_1\ X0) \wedge \\ & (v3\_group\_1\ X0) \wedge (v4\_vectsp\_1\ X0) \wedge (v5\_vectsp\_1\ X0) \wedge (l6\_algstr\_0 \\ & X0)))))) \wedge (((\neg v2\_struct\_0\ X1) \wedge (v13\_algstr\_0\ X1) \wedge (v2\_rlvect\_1 \\ & X1) \wedge (v3\_rlvect\_1\ X1) \wedge (v4\_rlvect\_1\ X1) \wedge (v3\_group\_1\ X1) \wedge \\ & (v4\_vectsp\_1\ X1) \wedge (v5\_vectsp\_1\ X1) \wedge (l6\_algstr\_0\ X1)))))) \wedge \\ & ((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0 \\ & X1)) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0 \\ & X0)\ (u1\_struct\_0\ X1)))))) \Rightarrow ((v2\_ringcat1\ (g1\_ringcat1\ X0\ X1\ X2) \\ & X2)) \wedge (l1\_ringcat1\ (g1\_ringcat1\ X0\ X1\ X2))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(l1\_ringcat1\ X0) \Rightarrow ((v3\_ringcat1\ X0) \Leftrightarrow (v1\_ringcat1\ (k3\_ringcat1\ X0)\ (u1\_ringcat1\ X0)\ (u2\_ringcat1\ X0))) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_ringcat1\ X0) \Rightarrow (k3\_ringcat1\ X0 = u3\_ringcat1\ X0) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_ringcat1\ X0) \Rightarrow ((v2\_ringcat1\ X0) \Rightarrow (X0 = g1\_ringcat1\ (u1\_ringcat1\ X0)\ (u2\_ringcat1\ X0)\ (u3\_ringcat1\ X0))) \quad (8)$$

**Theorem 1**

$$\forall X0.((v3\_ringcat1\ X0) \wedge (l1\_ringcat1\ X0)) \Rightarrow (v3\_ringcat1\ (g1\_ringcat1\ (u1\_ringcat1\ X0)\ (u2\_ringcat1\ X0)\ (u3\_ringcat1\ X0)))$$