

# l14\_ringcat1

(TMGtJz1pne3viExQb4G5ZtpddhyDsbyeAr5)

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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  $v1\_funct\_1 : \iota \Rightarrow o$  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  $v1\_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $g1\_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k3\_ringcat1 : \iota \Rightarrow \iota$  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. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 X0) \wedge ( \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0))))))) \Rightarrow \\
& (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ( \\
& (v4\_vectsp\_1 X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1))))))) \Rightarrow \\
& (\forall X2. ((v2\_ringcat1 X2) \wedge (l1\_ringcat1 X2)) \Rightarrow (((k1\_ringcat1 \\
& X2 = X0) \wedge ((k2\_ringcat1 X2 = X1) \wedge (v1\_ringcat1 (k3\_ringcat1 X2) ( \\
& u1\_ringcat1 X2) (u2\_ringcat1 X2)))) \Rightarrow (m1\_ringcat1 X2 X0 X1))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (v13\_algstr\_0 \\
& X0) \wedge (v2\_rlvect\_1 X0) \wedge (v3\_rlvect\_1 X0) \wedge (v4\_rlvect\_1 X0) \wedge \\
& ((v3\_group\_1 X0) \wedge (v4\_vectsp\_1 X0) \wedge (v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 \\
& X0)))))) \wedge (((\neg v2\_struct\_0 X1) \wedge (v13\_algstr\_0 X1) \wedge (v2\_rlvect\_1 \\
& X1) \wedge (v3\_rlvect\_1 X1) \wedge (v4\_rlvect\_1 X1) \wedge (v3\_group\_1 X1) \wedge \\
& (v4\_vectsp\_1 X1) \wedge (v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))) \wedge \\
& ((v1\_funct\_1 X2) \wedge (v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\
& X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3. \forall X4. \forall X5. \\
& (g1\_ringcat1 X0 X1 X2 = g1\_ringcat1 X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge \\
& (X2 = X5))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (v13\_algstr\_0 \\
& X0) \wedge (v2\_rlvect\_1 X0) \wedge (v3\_rlvect\_1 X0) \wedge (v4\_rlvect\_1 X0) \wedge \\
& ((v3\_group\_1 X0) \wedge (v4\_vectsp\_1 X0) \wedge (v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 \\
& X0)))))) \wedge (((\neg v2\_struct\_0 X1) \wedge (v13\_algstr\_0 X1) \wedge (v2\_rlvect\_1 \\
& X1) \wedge (v3\_rlvect\_1 X1) \wedge (v4\_rlvect\_1 X1) \wedge (v3\_group\_1 X1) \wedge \\
& (v4\_vectsp\_1 X1) \wedge (v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))) \wedge \\
& ((v1\_funct\_1 X2) \wedge (v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\
& X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1)))))) \Rightarrow ((v2\_ringcat1 (g1\_ringcat1 X0 X1 \\
& X2)) \wedge (l1\_ringcat1 (g1\_ringcat1 X0 X1 X2)))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. (l1\_ringcat1 X0) \Rightarrow (k3\_ringcat1 X0 = u3\_ringcat1 X0) \tag{4}$$

Assume the following.

$$\forall X0. (l1\_ringcat1 X0) \Rightarrow (k2\_ringcat1 X0 = u2\_ringcat1 X0) \tag{5}$$

Assume the following.

$$\forall X0. (l1\_ringcat1 X0) \Rightarrow (k1\_ringcat1 X0 = u1\_ringcat1 X0) \tag{6}$$

Assume the following.

$$\forall X0. (l1\_ringcat1 X0) \Rightarrow ((v2\_ringcat1 X0) \Rightarrow (X0 = g1\_ringcat1 \\
(u1\_ringcat1 X0) (u2\_ringcat1 X0) (u3\_ringcat1 X0))) \tag{7}$$

**Theorem 1**

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