

# t18\_ringcat1

(TMRJDhsRt6oyFuBkgRdNYhS84ybQBCuhikS)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_classes2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_ringcat1 : \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v36\_algstr\_0 : \iota \Rightarrow o$  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  $r2\_ringcat1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_xtuple\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_xtuple\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_vectsp\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u2\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \Rightarrow (\neg v1\_xboole\_0 (k9\_ringcat1 X0)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \Rightarrow ((m1\_subset\_1 X1 X0) \Leftrightarrow (X1 \in X0))) \wedge ((v1\_xboole\_0 X0) \Rightarrow ((m1\_subset\_1 X1 X0) \Leftrightarrow (v1\_xboole\_0 X1))) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \Rightarrow (\forall X1. (X1 = k9\_ringcat1 X0) \Leftrightarrow (\forall X2. (X2 \in X1) \Leftrightarrow (\exists X3. (X3 \in X0) \wedge (r2\_ringcat1 X3 X2)))) \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (r2\_ringcat1\ X0\ X1) \Leftrightarrow (\exists X2. \exists X3. \\
& \quad \exists X4. \exists X5. \exists X6. \exists X7. (X0 = k3\_xtuple\_0 \\
& \quad (k6\_xtuple\_0\ X2\ X3\ X4\ X5)\ X6\ X7) \wedge (\exists X8. ((\neg v2\_struct\_0\ X8) \wedge \\
& \quad ((v13\_algstr\_0\ X8) \wedge ((v36\_algstr\_0\ X8) \wedge ((v2\_rlvect\_1\ X8) \wedge (( \\
& \quad v3\_rlvect\_1\ X8) \wedge ((v4\_rlvect\_1\ X8) \wedge ((v3\_group\_1\ X8) \wedge ((v4\_vectsp\_1 \\
& \quad X8) \wedge ((v5\_vectsp\_1\ X8) \wedge (l6\_algstr\_0\ X8)))))))))) \wedge ((X1 = X8) \wedge \\
& \quad ((X2 = u1\_struct\_0\ X8) \wedge ((X3 = u1\_algstr\_0\ X8) \wedge ((X4 = k5\_vectsp\_1 \\
& \quad X8) \wedge ((X5 = k4\_struct\_0\ X8) \wedge ((X6 = u2\_algstr\_0\ X8) \wedge (X7 = k5\_struct\_0 \\
& \quad X8))))))))))
\end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0. ((\neg v1\_xboole\_0\ X0) \wedge (v1\_classes2\ X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1\ X1\ (k9\_ringcat1\ X0)) \Rightarrow ((\neg v2\_struct\_0\ X1) \wedge ((v13\_algstr\_0 \\
& \quad X1) \wedge ((v36\_algstr\_0\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1\ X1) \wedge \\
& \quad ((v4\_rlvect\_1\ X1) \wedge ((v3\_group\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1 \\
& \quad X1) \wedge (l6\_algstr\_0\ X1))))))))))
\end{aligned}$$