t8_ringcat1 (TM-FEv479ATbL2wiL8v8Ax8UgeE5UMPacEVA)

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Let $v2\_ringcat1 : \iota \Rightarrow o$ be given. Let $v3\_ringcat1 : \iota \Rightarrow o$ 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 $k6\_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $m1\_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_ringcat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v2\_rlvect\_1\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge ((v5\_vectsp\_1\ X0) \wedge (l6\_algstr\_0\ X0))))))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1\ X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v3\_group\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1\ X1) \wedge (l6\_algstr\_0\ X1))))))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge ((v13\_algstr\_0\ X2) \wedge ((v2\_rlvect\_1\ X2) \wedge ((v3\_rlvect\_1\ X2) \wedge ((v4\_rlvect\_1\ X2) \wedge ((v3\_group\_1\ X2) \wedge ((v4\_vectsp\_1\ X2) \wedge ((v5\_vectsp\_1\ X2) \wedge (l6\_algstr\_0\ X2))))))))) \Rightarrow (\forall X3.(m1\_ringcat1\ X3\ X0\ X1) \Rightarrow (\forall X4.(m1\_ringcat1\ X4\ X2\ X0) \Rightarrow (((r1\_ringcat1\ X2\ X0) \wedge (r1\_ringcat1\ X0\ X1)) \Rightarrow (m1\_ringcat1\ (k6\_ringcat1\ X3\ X4)\ X2\ X1))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge(l6\_algstr\_0\ X0)))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge((v3\_group\_1\ X1)\wedge((v4\_vectsp\_1\ X1)\wedge((v5\_vectsp\_1\ X1)\wedge(l6\_algstr\_0\ X1)))))))))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((v13\_algstr\_0\ X2)\wedge((v2\_rlvect\_1\ X2)\wedge((v3\_rlvect\_1\ X2)\wedge((v4\_rlvect\_1\ X2)\wedge((v3\_group\_1\ X2)\wedge((v4\_vectsp\_1\ X2)\wedge((v5\_vectsp\_1\ X2)\wedge(l6\_algstr\_0\ X2)))))))))\Rightarrow(((r1\_ringcat1\ X0\ X1)\wedge(r1\_ringcat1\ X1\ X2))\Rightarrow(r1\_ringcat1\ X0\ X2))))) \tag{2}$$

Assume the following.

$$\forall X0.((v2\_ringcat1\ X0)\wedge((v3\_ringcat1\ X0)\wedge(l1\_ringcat1\ X0)))\Rightarrow((m1\_ringcat1\ X0\ (k1\_ringcat1\ X0)\ (k2\_ringcat1\ X0))\wedge(r1\_ringcat1\ (k1\_ringcat1\ X0)\ (k2\_ringcat1\ X0))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge(l6\_algstr\_0\ X0)))))))))\wedge((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge((v3\_group\_1\ X1)\wedge((v4\_vectsp\_1\ X1)\wedge((v5\_vectsp\_1\ X1)\wedge(l6\_algstr\_0\ X1)))))))))\Rightarrow(\forall X2.(m1\_ringcat1\ X2\ X0\ X1)\Rightarrow((v2\_ringcat1\ X2)\wedge((v3\_ringcat1\ X2)\wedge(l1\_ringcat1\ X2)))) \tag{4}$$

Assume the following.

$$\forall X0.(l1\_ringcat1\ X0)\Rightarrow((\neg v2\_struct\_0\ (k2\_ringcat1\ X0))\wedge((v13\_algstr\_0\ (k2\_ringcat1\ X0))\wedge((v2\_rlvect\_1\ (k2\_ringcat1\ X0))\wedge((v3\_rlvect\_1\ (k2\_ringcat1\ X0))\wedge((v4\_rlvect\_1\ (k2\_ringcat1\ X0))\wedge((v3\_group\_1\ (k2\_ringcat1\ X0))\wedge((v4\_vectsp\_1\ (k2\_ringcat1\ X0))\wedge((v5\_vectsp\_1\ (k2\_ringcat1\ X0))\wedge(l6\_algstr\_0\ (k2\_ringcat1\ X0))))))))))) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_ringcat1\ X0)\Rightarrow((\neg v2\_struct\_0\ (k1\_ringcat1\ X0))\wedge((v13\_algstr\_0\ (k1\_ringcat1\ X0))\wedge((v2\_rlvect\_1\ (k1\_ringcat1\ X0))\wedge((v3\_rlvect\_1\ (k1\_ringcat1\ X0))\wedge((v4\_rlvect\_1\ (k1\_ringcat1\ X0))\wedge((v3\_group\_1\ (k1\_ringcat1\ X0))\wedge((v4\_vectsp\_1\ (k1\_ringcat1\ X0))\wedge((v5\_vectsp\_1\ (k1\_ringcat1\ X0))\wedge(l6\_algstr\_0\ (k1\_ringcat1\ X0))))))))))) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge((v3\_group\_1\ X1)\wedge((v4\_vectsp\_1\ X1)\wedge((v5\_vectsp\_1\ X1)\wedge(l6\_algstr\_0\ X1))))))))\Rightarrow((r1\_ringcat1\ X0\ X1)\Rightarrow(\forall X2.((v2\_ringcat1\ X2)\wedge((v3\_ringcat1\ X2)\wedge(l1\_ringcat1\ X2)))\Rightarrow((m1\_ringcat1\ X2\ X0\ X1)\Leftrightarrow((k1\_ringcat1\ X2 = X0)\wedge(k2\_ringcat1\ X2 = X1)))))) \tag{7}$$

Theorem 1

$$\forall X0.((v2\_ringcat1\ X0)\wedge((v3\_ringcat1\ X0)\wedge(l1\_ringcat1\ X0)))\Rightarrow(\forall X1.((v2\_ringcat1\ X1)\wedge((v3\_ringcat1\ X1)\wedge(l1\_ringcat1\ X1)))\Rightarrow((k1\_ringcat1\ X1 = k2\_ringcat1\ X0)\Rightarrow((k1\_ringcat1\ (k6\_ringcat1\ X1\ X0) = k1\_ringcat1\ X0)\wedge(k2\_ringcat1\ (k6\_ringcat1\ X1\ X0) = k2\_ringcat1\ X1))))$$