

t19_ringcat1 (TMJm- rrE7jQioHTXDDzHMmEuteCXqBH8NwC7)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v4_ringcat1 : \iota \Rightarrow o$ be given. Let $m3_ringcat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_ringcat1 : \iota \Rightarrow \iota$ be given. Let $k11_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_ringcat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_ringcat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_ringcat1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_ringcat1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((v2_ringcat1 X0) \wedge ((v3_ringcat1 X0) \wedge (l1_ringcat1 X0))) \Rightarrow ((m1_ringcat1 X0 (k1_ringcat1 X0) (k2_ringcat1 X0)) \wedge (r1_ringcat1 (k1_ringcat1 X0) (k2_ringcat1 X0))) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v1_xboole_0 X0) \wedge (v5_ringcat1 X0)) \Rightarrow (\forall X1. (m3_ringcat1 X1 X0) \Leftrightarrow (m1_subset_1 X1 X0)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v1_xboole_0 X0) \wedge (v4_ringcat1 X0)) \wedge (m1_subset_1 X1 (k10_ringcat1 X0))) \Rightarrow (k12_ringcat1 X0 X1 = k2_ringcat1 X1) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v1_xboole_0 X0) \wedge (v4_ringcat1 X0)) \wedge (m1_subset_1 X1 (k10_ringcat1 X0))) \Rightarrow (k11_ringcat1 X0 X1 = k1_ringcat1 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v1_xboole_0 X0)\wedge(v4_ringcat1 X0))\wedge(m1_subset_1 X1 (k10_ringcat1 X0)))\Rightarrow(m2_ringcat1 (k12_ringcat1 X0 X1) X0) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v1_xboole_0 X0)\wedge(v4_ringcat1 X0))\wedge(m1_subset_1 X1 (k10_ringcat1 X0)))\Rightarrow(m2_ringcat1 (k11_ringcat1 X0 X1) X0) \quad (7)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v4_ringcat1 X0))\Rightarrow((\neg v1_xboole_0 (k10_ringcat1 X0))\wedge(v5_ringcat1 (k10_ringcat1 X0))) \quad (8)$$

Assume the following.

$$\forall X0.(v5_ringcat1 X0)\Leftrightarrow(\forall X1.(X1 \in X0)\Rightarrow((v2_ringcat1 X1)\wedge((v3_ringcat1 X1)\wedge(l1_ringcat1 X1)))) \quad (9)$$

Theorem 1

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v4_ringcat1 X0))\Rightarrow(\forall X1.(m3_ringcat1 X1 (k10_ringcat1 X0))\Rightarrow(\forall X2.(m3_ringcat1 X2 (k10_ringcat1 X0))\Rightarrow(\neg(k11_ringcat1 X0 X1 = k12_ringcat1 X0 X2)\wedge(\forall X3.(m2_ringcat1 X3 X0)\Rightarrow(\forall X4.(m2_ringcat1 X4 X0)\Rightarrow(\forall X5.(m2_ringcat1 X5 X0)\Rightarrow(\neg(r1_ringcat1 X3 X4)\wedge((r1_ringcat1 X4 X5)\wedge((m1_ringcat1 X1 X4 X5)\wedge(m1_ringcat1 X2 X3 X4))))))))))$$