

t5_flang_1
(TMSM79LeC8JenjHuifmpgsrFS8naVxvFYhM)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_catalan2 : \iota \Rightarrow \iota$ be given. Let $v5_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $k1_ordinal4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v5_ordinal1 X0) \wedge ((v1_funct_1 \\ & X0) \wedge (v1_finset_1 X0)))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v5_ordinal1 \\ & X1) \wedge ((v1_funct_1 X1) \wedge (v1_finset_1 X1)))) \Rightarrow (\forall X2.((v1_relat_1 \\ & (k1_ordinal4 X0 X1)) \wedge ((v5_relat_1 (k1_ordinal4 X0 X1) X2) \wedge ((v5_ordinal1 \\ & (k1_ordinal4 X0 X1)) \wedge ((v1_funct_1 (k1_ordinal4 X0 X1)) \wedge (v1_finset_1 \\ & (k1_ordinal4 X0 X1)))))) \Rightarrow (((v1_relat_1 X0) \wedge ((v5_relat_1 X0 X2) \wedge \\ & ((v5_ordinal1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finset_1 X0)))) \wedge ((\\ & v1_relat_1 X1) \wedge ((v5_relat_1 X1 X2) \wedge ((v5_ordinal1 X1) \wedge ((v1_funct_1 \\ & X1) \wedge (v1_finset_1 X1))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{2}$$

Assume the following.

$$\forall X0. k3_catalan2 X0 = k8_afinsq_1 X0 \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v5_ordinal1 X0) \wedge (\\ & (v1_funct_1 X0) \wedge (v1_finset_1 X0)))) \wedge ((v1_relat_1 X1) \wedge ((v5_ordinal1 \\ & X1) \wedge ((v1_funct_1 X1) \wedge (v1_finset_1 X1)))))) \Rightarrow ((v1_relat_1 (k1_ordinal4 \\ & X0 X1)) \wedge ((v5_ordinal1 (k1_ordinal4 X0 X1)) \wedge ((v1_funct_1 (k1_ordinal4 \\ & X0 X1)) \wedge (v1_finset_1 (k1_ordinal4 X0 X1)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0. \neg v1_xboole_0 (k8_afinsq_1 X0) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v5_ordinal1 X0)\wedge(v1_funct_1 X0)))\wedge((v1_relat_1 X1)\wedge((v5_ordinal1 X1)\wedge(v1_funct_1 X1))))\Rightarrow((v1_relat_1 (k1_ordinal4 X0 X1))\wedge((v5_ordinal1 (k1_ordinal4 X0 X1))\wedge(v1_funct_1 (k1_ordinal4 X0 X1)))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k8_afinsq_1 X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow((v1_relat_1 X2)\wedge((v5_relat_1 X2 X0)\wedge((v5_ordinal1 X2)\wedge((v1_funct_1 X2)\wedge(v1_finset_1 X2)))))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\Rightarrow((m1_subset_1 X1 X0)\Leftrightarrow(X1 \in X0)))\wedge((v1_xboole_0 X0)\Rightarrow((m1_subset_1 X1 X0)\Leftrightarrow(v1_xboole_0 X1))) \quad (8)$$

Theorem 1

$$\forall X0.\forall X1.(m1_subset_1 X1 (k3_catalan2 X0))\Rightarrow(\forall X2.((v5_ordinal1 X2)\wedge((v1_relat_1 X2)\wedge((v1_funct_1 X2)\wedge(v1_finset_1 X2))))\Rightarrow(\forall X3.((v5_ordinal1 X3)\wedge((v1_relat_1 X3)\wedge((v1_funct_1 X3)\wedge(v1_finset_1 X3))))\Rightarrow((X1 = k1_ordinal4 X2 X3)\Rightarrow((m1_subset_1 X2 (k3_catalan2 X0))\wedge(m1_subset_1 X3 (k3_catalan2 X0))))))$$