

t41_graph_3
(TMQJ6FoMdvMZMXFVAesvmHgK35nDy6og2vb)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_graph_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k8_graph_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_graph_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_graph_1 : \iota \Rightarrow \iota$ be given. Let $u2_graph_1 : \iota \Rightarrow \iota$ be given. Let $k6_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_graph_1 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow (\\ & \quad \forall X2. (m1_subset_1 X2 (u1_struct_0 X1)) \Rightarrow (\forall X3. (m1_subset_1 \\ & \quad X3 (u1_struct_0 X1)) \Rightarrow ((X0 \in u4_struct_0 X1) \Rightarrow ((k1_funct_1 (u1_graph_1 \\ & \quad (k8_graph_3 X1 X2 X3)) X0 = k1_funct_1 (u1_graph_1 X1) X0) \wedge (k1_funct_1 \\ & \quad (u2_graph_1 (k8_graph_3 X1 X2 X3)) X0 = k1_funct_1 (u2_graph_1 X1) \\ & \quad X0)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow (\forall X1. \\ & \quad (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 \\ & \quad (u1_struct_0 X0)) \Rightarrow ((u4_struct_0 X0 \in u4_struct_0 (k8_graph_3 \\ & \quad X0 X1 X2)) \wedge ((u4_struct_0 X0 = k6_subset_1 (u4_struct_0 (k8_graph_3 \\ & \quad X0 X1 X2)) (k1_tarski (u4_struct_0 X0))) \wedge ((k1_funct_1 (u1_graph_1 \\ & \quad (k8_graph_3 X0 X1 X2)) (u4_struct_0 X0) = X1) \wedge (k1_funct_1 (u2_graph_1 \\ & \quad (k8_graph_3 X0 X1 X2)) (u4_struct_0 X0) = X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge(l1_graph_1 \\ & X0))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 \\ & X0))))\Rightarrow((\neg v2_struct_0 (k8_graph_3 X0 X1 X2))\wedge((v1_graph_1 (k8_graph_3 \\ & X0 X1 X2))\wedge(l1_graph_1 (k8_graph_3 X0 X1 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge(l1_graph_1 \\ & X0))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k3_graph_3 \\ & X0 X1 X2) (k1_zfmisc_1 (u4_struct_0 X0))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(r1_xboole_0 X0 X1)\Leftrightarrow(k3_xboole_0 X0 X1 = k1_xboole_0) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_graph_1 X0))\Rightarrow(\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 \\ & (u1_struct_0 X0))\Rightarrow(\forall X3.((\neg v2_struct_0 X3)\wedge((v1_graph_1 \\ & X3)\wedge(l1_graph_1 X3))))\Rightarrow((X3 = k8_graph_3 X0 X1 X2)\Leftrightarrow((u1_struct_0 \\ & X3 = u1_struct_0 X0)\wedge((u4_struct_0 X3 = k2_xboole_0 (u4_struct_0 \\ & X0) (k1_tarski (u4_struct_0 X0)))\wedge((u1_graph_1 X3 = k1_funct_4 \\ & (u1_graph_1 X0) (k16_funcop_1 (u4_struct_0 X0) X1))\wedge(u2_graph_1 \\ & X3 = k1_funct_4 (u2_graph_1 X0) (k16_funcop_1 (u4_struct_0 X0) \\ & X2)))))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(X2 = k3_xboole_0 X0 X1)\Leftrightarrow(\forall X3. \\ & (X3 \in X2)\Leftrightarrow((X3 \in X0)\wedge(X3 \in X1))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(X2 = k2_xboole_0 X0 X1)\Leftrightarrow(\forall X3. \\ & (X3 \in X2)\Leftrightarrow((X3 \in X0)\vee(X3 \in X1))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_graph_1 X0))\Rightarrow(\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.\forall X3.(m1_subset_1 \\ & X3 (k1_zfmisc_1 (u4_struct_0 X0)))\Rightarrow((X3 = k3_graph_3 X0 X1 X2)\Leftrightarrow \\ & (\forall X4.(X4 \in X3)\Leftrightarrow((X4 \in u4_struct_0 X0)\wedge((X4 \in X2)\wedge(k1_funct_1 \\ & (u1_graph_1 X0) X4 = X1)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Leftrightarrow (\forall X1. \neg X1 \in X0) \quad (11)$$

Assume the following.

$$\forall X0. \forall X1. (X1 = k1_tarski X0) \Leftrightarrow (\forall X2. (X2 \in X1) \Leftrightarrow (X2 = X0)) \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (\neg X1 \in X0) \quad (13)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow (\\ & \forall X2. (m1_subset_1 X2 (u1_struct_0 X1)) \Rightarrow (\forall X3. (m1_subset_1 \\ & X3 (u1_struct_0 X1)) \Rightarrow (\forall X4. (m1_subset_1 X4 (u1_struct_0 \\ & (k8_graph_3 X1 X3 X2))) \Rightarrow (((X4 = X3) \wedge (u4_struct_0 X1 \in X0)) \Rightarrow ((k3_graph_3 \\ & (k8_graph_3 X1 X3 X2) X4 X0 = k2_xboole_0 (k3_graph_3 X1 X3 X0) (k1_tarski \\ & (u4_struct_0 X1))) \wedge (r1_xboole_0 (k3_graph_3 X1 X3 X0) (k1_tarski \\ & (u4_struct_0 X1)))))))))) \end{aligned}$$