

t18_graph_1
(TMEpVZQhb3DUtQZ1kHzaF6JS698WSPG5kGi)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_graph_1 : \iota \Rightarrow o$ be given. Let $r1_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4_graph_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g1_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_graph_1 : \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_graph_1 : \iota \Rightarrow \iota$ be given. Let $k5_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_graph_1 : \iota \Rightarrow o$ be given. Let $r1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m3_graph_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. r1_tarski X0 (k2_xboole_0 X0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow (\forall X2. ((\neg v2_struct_0 \\ & X2) \wedge (l1_graph_1 X2)) \Rightarrow ((r1_graph_1 X0 X1 X2) \Rightarrow (r1_graph_1 X0 X2 \\ & X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \wedge ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1))) \Rightarrow (r4_graph_1 X0 X0) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X1 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0)))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))))) \Rightarrow (\forall X4. \forall X5. \\ & \forall X6. \forall X7. (g1_graph_1 X0 X1 X2 X3 = g1_graph_1 X4 X5 X6 \\ & X7) \Rightarrow ((X0 = X4) \wedge ((X1 = X5) \wedge ((X2 = X6) \wedge (X3 = X7)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_graph_1 X0) \Rightarrow & ((v1_funct_1 (u2_graph_1 X0)) \wedge ((\\ & v1_funct_2 (u2_graph_1 X0) (u4_struct_0 X0) (u1_struct_0 X0)) \wedge \\ & (m1_subset_1 (u2_graph_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 \\ & X0) (u1_struct_0 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_graph_1 X0) \Rightarrow & ((v1_funct_1 (u1_graph_1 X0)) \wedge ((\\ & v1_funct_2 (u1_graph_1 X0) (u4_struct_0 X0) (u1_struct_0 X0)) \wedge \\ & (m1_subset_1 (u1_graph_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 \\ & X0) (u1_struct_0 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \wedge \\ ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1))) \Rightarrow & ((\neg v2_struct_0 (k5_graph_1 \\ X0 X1)) \wedge ((v1_graph_1 (k5_graph_1 X0 X1)) \wedge (l1_graph_1 (k5_graph_1 \\ X0 X1)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow & (\forall X1. \\ ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow & (\forall X2.((\neg v2_struct_0 \\ X2) \wedge (l1_graph_1 X2)) \Rightarrow & ((r1_graph_1 X0 X1 X2) \Leftrightarrow ((r1_partfun1 (u2_graph_1 \\ X1) (u2_graph_1 X2)) \wedge (r1_partfun1 (u1_graph_1 X1) (u1_graph_1 \\ X2)) \wedge (g1_graph_1 (u1_struct_0 X0) (u4_struct_0 X0) (u1_graph_1 \\ X0) (u2_graph_1 X0) = k5_graph_1 X1 X2)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow & (\forall X1. \\ ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow & (((r1_partfun1 (u1_graph_1 \\ X0) (u1_graph_1 X1)) \wedge (r1_partfun1 (u2_graph_1 X0) (u2_graph_1 \\ X1))) \Rightarrow & (\forall X2.((\neg v2_struct_0 X2) \wedge ((v1_graph_1 X2) \wedge (l1_graph_1 \\ X2))) \Rightarrow & ((X2 = k5_graph_1 X0 X1) \Leftrightarrow ((u1_struct_0 X2 = k2_xboole_0 (\\ u1_struct_0 X0) (u1_struct_0 X1)) \wedge ((u4_struct_0 X2 = k2_xboole_0 \\ (u4_struct_0 X0) (u4_struct_0 X1)) \wedge ((\forall X3.(X3 \in u4_struct_0 \\ X0) \Rightarrow & ((k1_funct_1 (u1_graph_1 X2) X3 = k1_funct_1 (u1_graph_1 X0) \\ X3) \wedge (k1_funct_1 (u2_graph_1 X2) X3 = k1_funct_1 (u2_graph_1 X0) \\ X3))) \wedge (\forall X3.(X3 \in u4_struct_0 X1) \Rightarrow & ((k1_funct_1 (u1_graph_1 \\ X2) X3 = k1_funct_1 (u1_graph_1 X1) X3) \wedge (k1_funct_1 (u2_graph_1 \\ X2) X3 = k1_funct_1 (u2_graph_1 X1) X3)))))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow ((r4_graph_1 X0 X1) \Leftrightarrow (m3_graph_1 \\ & X0 X1))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow ((m3_graph_1 X1 X0) \Leftrightarrow ((r1_tarski \\ & (u1_struct_0 X1) (u1_struct_0 X0)) \wedge ((r1_tarski (u4_struct_0 \\ & X1) (u4_struct_0 X0)) \wedge (\forall X2.(X2 \in u4_struct_0 X1) \Rightarrow ((k1_funct_1 \\ & (u1_graph_1 X1) X2 = k1_funct_1 (u1_graph_1 X0) X2) \wedge ((k1_funct_1 \\ & (u2_graph_1 X1) X2 = k1_funct_1 (u2_graph_1 X0) X2) \wedge ((k1_funct_1 \\ & (u1_graph_1 X0) X2 \in u1_struct_0 X1) \wedge (k1_funct_1 (u2_graph_1 X0) \\ & X2 \in u1_struct_0 X1)))))))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_graph_1 X0) \Rightarrow ((v1_graph_1 X0) \Rightarrow (X0 = g1_graph_1 \\ & (u1_struct_0 X0) (u4_struct_0 X0) (u1_graph_1 X0) (u2_graph_1 \\ & X0))) \end{aligned} \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\ & X2) \wedge (l1_graph_1 X2)) \Rightarrow ((r1_graph_1 X0 X1 X2) \Rightarrow ((r4_graph_1 X1 X0) \wedge \\ & (r4_graph_1 X2 X0)))))) \end{aligned}$$