

t27_sysrel
(TMctkeWkovJz9PiA2WtAT8aH11QnXcwzor6)

October 27, 2020

Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_sysrel : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k4_relat_1 : \iota \Rightarrow \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v1_relat_1 X0) \Rightarrow (k9_xtuple_0 (k1_sysrel X0) = k10_xtuple_0 (k1_sysrel X0)) \quad (1)$$

Assume the following.

$$\forall X0.v1_relat_1 (k4_relat_1 X0) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.k4_tarski X0 X1 = k2_tarski (k2_tarski X0 X1) (k1_tarski X0) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k3_xboole_0 X0 X1) \Leftrightarrow (\forall X3.(X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \quad (4)$$

Assume the following.

$$\forall X0.(v1_relat_1 X0) \Rightarrow (k1_sysrel X0 = k3_xboole_0 X0 (k4_relat_1 (k9_xtuple_0 X0))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k10_xtuple_0 X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.k4_tarski X3 X2 \in X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k9_xtuple_0 X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.k4_tarski X2 X3 \in X0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X1)\Rightarrow((X1 = k4_relat_1 X0)\Leftrightarrow(\forall X2.\forall X3.(k4_tarski X2 X3 \in X1)\Leftrightarrow((X2 \in X0)\wedge(X2 = X3)))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k2_tarski X0 X1 = k2_tarski X1 X0 \quad (10)$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.(v1_relat_1 X1)\Rightarrow(((X0 \in k9_xtuple_0 (k1_sysrel \\ & X1))\Rightarrow((X0 \in k9_xtuple_0 X1)\wedge(k4_tarski X0 X0 \in X1)))\wedge(((X0 \in k9_xtuple_0 \\ & X1)\wedge(k4_tarski X0 X0 \in X1))\Rightarrow(X0 \in k9_xtuple_0 (k1_sysrel X1)))\wedge \\ & (((X0 \in k10_xtuple_0 (k1_sysrel X1))\Rightarrow((X0 \in k9_xtuple_0 X1)\wedge(k4_tarski \\ & X0 X0 \in X1)))\wedge(((X0 \in k9_xtuple_0 X1)\wedge(k4_tarski X0 X0 \in X1))\Rightarrow(X0 \in \\ & k10_xtuple_0 (k1_sysrel X1)))\wedge(((X0 \in k10_xtuple_0 (k1_sysrel \\ & X1))\Rightarrow((X0 \in k10_xtuple_0 X1)\wedge(k4_tarski X0 X0 \in X1)))\wedge(((X0 \in k10_xtuple_0 \\ & X1)\wedge(k4_tarski X0 X0 \in X1))\Rightarrow(X0 \in k10_xtuple_0 (k1_sysrel X1)))\wedge \\ & (((X0 \in k9_xtuple_0 (k1_sysrel X1))\Rightarrow((X0 \in k10_xtuple_0 X1)\wedge(k4_tarski \\ & X0 X0 \in X1)))\wedge(((X0 \in k10_xtuple_0 X1)\wedge(k4_tarski X0 X0 \in X1))\Rightarrow(X0 \in \\ & k9_xtuple_0 (k1_sysrel X1))))))))) \end{aligned}$$