

t4_topgen_5
(TMP7VKPbqA5HbmP5KAK2fCokANMEhpJouFu)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k10_funct_6 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_5 : \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funct_5 : \iota \Rightarrow \iota$ be given. Let $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (k9_xtuple_0 (k3_funct_5 X0) = k10_xtuple_0 (k9_xtuple_0 X0)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (k4_tarski X0 X1 = k4_tarski X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3)) \quad (2)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v1_relat_1 (k2_funct_5 X0)) \wedge (v1_funct_1 (k2_funct_5 X0))) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((X1 = k2_funct_5 X0) \Leftrightarrow ((\forall X2. (X2 \in k9_xtuple_0 X1) \Leftrightarrow (\exists X3. \exists X4. ((v1_relat_1 X4) \wedge (v1_funct_1 X4)) \wedge (\exists X5. (X2 = k4_tarski X3 X5) \wedge ((X3 \in k9_xtuple_0 X0) \wedge ((X4 = k1_funct_1 X0 X3) \wedge (X5 \in k9_xtuple_0 X4)))))) \wedge (\forall X2. \forall X3. ((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow (((X2 \in k9_xtuple_0 X1) \wedge (X3 = k1_funct_1 X0 (k1_xtuple_0 X2))) \Rightarrow (k1_funct_1 X1 X2 = k1_funct_1 X3 (k2_xtuple_0 X2)))))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (X1 = k10_xtuple_0 X0) \Leftrightarrow (\forall X2. (X2 \in X1) \Leftrightarrow (\exists X3. k4_tarski X3 X2 \in X0)) \quad (5)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (k10_funct_6 X0 = k3_funct_5 (k2_funct_5 X0)) \quad (6)$$

Theorem 1

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((X0 \in k9_xtuple_0 (k10_funct_6 X1)) \Leftrightarrow (\exists X2. \exists X3. ((v1_relat_1 X3) \wedge (v1_funct_1 X3) \wedge (X2 \in k9_xtuple_0 X1) \wedge (X3 = k1_funct_1 X1 X2) \wedge (X0 \in k9_xtuple_0 X3))))))$$