

l24_funcop_1

(TMEzTVN1y6TupucRMFagiVUeuUnLPt7Anjb)

October 27, 2020

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 $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. \\ & ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow ((X0 \in k9_xtuple_0 (k3_relat_1 \\ & X2 X1)) \Rightarrow (k1_funct_1 (k3_relat_1 X2 X1) X0 = k1_funct_1 X1 (k1_funct_1 \\ & X2 X0)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. \\ & ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow ((X0 \in k9_xtuple_0 (k3_relat_1 \\ & X2 X1)) \Leftrightarrow ((X0 \in k9_xtuple_0 X2) \wedge (k1_funct_1 X2 X0 \in k9_xtuple_0 X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \wedge ((\\ & v1_relat_1 X1) \wedge (v1_funct_1 X1))) \Rightarrow ((v1_relat_1 (k13_funct_3 \\ & X0 X1)) \wedge (v1_funct_1 (k13_funct_3 X0 X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. ((\\ & v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. ((v1_relat_1 X2) \wedge \\ & (v1_funct_1 X2)) \Rightarrow ((X2 = k13_funct_3 X0 X1) \Leftrightarrow ((k9_xtuple_0 X2 = k3_xboole_0 \\ & (k9_xtuple_0 X0) (k9_xtuple_0 X1)) \wedge (\forall X3. (X3 \in k9_xtuple_0 \\ & X2) \Rightarrow (k1_funct_1 X2 X3 = k4_tarski (k1_funct_1 X0 X3) (k1_funct_1 \\ & X1 X3))))))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. \forall X2. \\ & k1_binop_1 X0 X1 X2 = k1_funct_1 X0 (k4_tarski X1 X2)) \end{aligned} \tag{5}$$

Theorem 1

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ & \quad v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge \\ & \quad (v1_funct_1 X2)) \Rightarrow (\forall X3.(X3 \in k9_xtuple_0 (k3_relat_1 (k13_funct_3 \\ & \quad X0 X1) X2)) \Rightarrow (k1_funct_1 (k3_relat_1 (k13_funct_3 X0 X1) X2) X3 = \\ & \quad k1_binop_1 X2 (k1_funct_1 X0 X3) (k1_funct_1 X1 X3)))))) \end{aligned}$$