

t54_funct_3
(TMLj8w4JiVqbU2i6oXzfshs9PMsKKixKToS)

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

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

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.

$$\forall X0. \forall X1. k3_xboole_0 X0 X0 = X0 \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \wedge ((v1_relat_1 X1) \wedge (v1_funct_1 X1))) \Rightarrow ((v1_relat_1 (k13_funct_3 X0 X1)) \wedge (v1_funct_1 (k13_funct_3 X0 X1))) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge \\ (v1_funct_1 X2)) \Rightarrow ((X2 = k13_funct_3 X0 X1) \Leftrightarrow ((k9_xtuple_0 X2 = k3_xboole_0 \\ (k9_xtuple_0 X0) (k9_xtuple_0 X1)) \wedge (\forall X3.(X3 \in k9_xtuple_0 \\ X2) \Rightarrow (k1_funct_1 X2 X3 = k4_tarski (k1_funct_1 X0 X3) (k1_funct_1 \\ X1 X3)))))))) \end{aligned} \quad (5)$$

Theorem 1

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