

t21_funcop_1

(TMWi2KjBR7jec1BPqm3ie7RHkttGjgBwqaB)

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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 $k3_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge \\ (v1_funct_1 X2)) \Rightarrow (\forall X3.(X3 \in k9_xtuple_0 (k3_relat_1 (k13_funct_3 \\ X0 X1 X2)) \Rightarrow (k1_funct_1 (k3_relat_1 (k13_funct_3 X0 X1 X2) X3 = \\ k1_binop_1 X2 (k1_funct_1 X0 X3) (k1_funct_1 X1 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v1_relat_1 X0) \wedge (v1_funct_1 \\ X0)) \wedge (((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \wedge ((v1_relat_1 X2) \wedge (\\ v1_funct_1 X2)))) \Rightarrow ((v1_relat_1 (k3_funcop_1 X0 X1 X2)) \wedge (v1_funct_1 \\ (k3_funcop_1 X0 X1 X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge \\ (v1_funct_1 X2)) \Rightarrow (k3_funcop_1 X0 X1 X2 = k3_relat_1 (k13_funct_3 \\ X1 X2) X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((X0 = X1) \Leftrightarrow ((k9_xtuple_0 X0 = \\ k9_xtuple_0 X1) \wedge (\forall X2.(X2 \in k9_xtuple_0 X0) \Rightarrow (k1_funct_1 \\ X0 X2 = k1_funct_1 X1 X2)))))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ & \quad v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge \\ & \quad (v1_funct_1 X2)) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow \\ & \quad (((k9_xtuple_0 X3 = k9_xtuple_0 (k3_funcop_1 X2 X0 X1)) \wedge (\forall X4. \\ & \quad (X4 \in k9_xtuple_0 (k3_funcop_1 X2 X0 X1)) \Rightarrow (k1_funct_1 X3 X4 = k1_binop_1 \\ & \quad X2 (k1_funct_1 X0 X4) (k1_funct_1 X1 X4)))))) \Rightarrow (X3 = k3_funcop_1 X2 \\ & \quad X0 X1)))))) \end{aligned}$$