

t83_card_3 (TMFWbMeeSEnWgJUe-
boRxJ27uZZ3Xag81FQZ)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k4_card_3 : \iota \Rightarrow \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ & v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((X0 \in k4_card_3 X1) \Leftrightarrow ((k9_xtuple_0 \\ & X0 = k9_xtuple_0 X1) \wedge (\forall X2.(X2 \in k9_xtuple_0 X1) \Rightarrow (k1_funct_1 \\ & X0 X2 \in k1_funct_1 X1 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.(v1_relat_1 X1) \Rightarrow (\forall X2. \\ & (v1_relat_1 X2) \Rightarrow ((k9_xtuple_0 X0 = k9_xtuple_0 X1) \Rightarrow (k9_xtuple_0 \\ & (k3_relat_1 X2 X0) = k9_xtuple_0 (k3_relat_1 X2 X1)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. \\ & ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow ((X0 \in k9_xtuple_0 (k3_relat_1 \\ & X2 X1)) \Rightarrow (k1_funct_1 (k3_relat_1 X2 X1) X0 = k1_funct_1 X1 (k1_funct_1 \\ & X2 X0)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. \\ & ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow ((X0 \in k9_xtuple_0 (k3_relat_1 \\ & X2 X1)) \Leftrightarrow ((X0 \in k9_xtuple_0 X2) \wedge (k1_funct_1 X2 X0 \in k9_xtuple_0 X1)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \wedge ((\\ & v1_relat_1 X1) \wedge (v1_funct_1 X1))) \Rightarrow ((v1_relat_1 (k3_relat_1 X0 \\ & X1)) \wedge (v1_funct_1 (k3_relat_1 X0 X1))) \end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.v1_relat_1 (k3_relat_1 X0 X1) \tag{6}$$

Theorem 1

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge \\ (v1_funct_1 X2)) \Rightarrow ((X1 \in k4_card_3 X0) \Rightarrow (k3_relat_1 X2 X1 \in k4_card_3 \\ (k3_relat_1 X2 X0)))))) \end{aligned}$$