

t21_arytm_1 (TM- SQmE7yCf3VRpsSazqFwpAEfwgY3FGp8gL)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_arytm_2 : \iota$ be given. Let $r1_arytm_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_arytm_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_arytm_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_arytm_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_arytm_3 : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k2_arytm_2) \Rightarrow (\forall X2.(m1_subset_1 X2 k2_arytm_2) \Rightarrow ((r1_arytm_2 \\ & X0 X1) \Rightarrow (k1_arytm_1 X2 (k1_arytm_1 X1 X0) = k1_arytm_1 (k7_arytm_2 \\ & X2 X0) X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k2_arytm_2) \Rightarrow (\forall X2.(m1_subset_1 X2 k2_arytm_2) \Rightarrow (k1_arytm_1 \\ & (k1_arytm_1 X0 X1) X2 = k1_arytm_1 X0 (k7_arytm_2 X2 X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k2_arytm_2) \Rightarrow (\forall X2.(m1_subset_1 X2 k2_arytm_2) \Rightarrow ((r1_arytm_2 \\ & (k1_arytm_1 X0 X1) X2) \Leftrightarrow (r1_arytm_2 X0 (k7_arytm_2 X2 X1)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((m1_subset_1 X0 k2_arytm_2) \wedge (m1_subset_1 \\ & X1 k2_arytm_2)) \Rightarrow (m1_subset_1 (k7_arytm_2 X0 X1) k2_arytm_2) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((m1_subset_1 X0 k2_arytm_2) \wedge (m1_subset_1 \\ & X1 k2_arytm_2)) \Rightarrow (m1_subset_1 (k1_arytm_1 X0 X1) k2_arytm_2) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k2_arytm_2) \Rightarrow (((r1_arytm_2 X1 X0) \Rightarrow (k2_arytm_1 X0 X1 = k1_arytm_1 \\ & X0 X1)) \wedge ((\neg r1_arytm_2 X1 X0) \Rightarrow (k2_arytm_1 X0 X1 = k4_tarski k11_arytm_3 \\ & (k1_arytm_1 X1 X0)))) \end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k2_arytm_2)\wedge(m1_subset_1 X1 k2_arytm_2))\Rightarrow((r1_arytm_2 X0 X1)\vee(r1_arytm_2 X1 X0)) \quad (7)$$

Theorem 1

$$\begin{aligned} \forall X0.(m1_subset_1 X0 k2_arytm_2)\Rightarrow(\forall X1.(m1_subset_1 \\ X1 k2_arytm_2)\Rightarrow(\forall X2.(m1_subset_1 X2 k2_arytm_2)\Rightarrow((\neg r1_arytm_2 \\ X0 X1)\Rightarrow(k2_arytm_1 X2 (k1_arytm_1 X0 X1) = k2_arytm_1 (k7_arytm_2 \\ X2 X1) X0)))) \end{aligned}$$