

t80_arytm_3
(TMHAKZX8pU1RyJjjJ85J1tSBKu0j9HKiasB)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_arytm_3 : \iota$ be given. Let $r3_arytm_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_arytm_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_arytm_3 : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k5_arytm_3) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k5_arytm_3) \Rightarrow (\forall X2.(m1_subset_1 X2 k5_arytm_3) \Rightarrow (\neg(r3_arytm_3 \\ & X0 (k10_arytm_3 X1 X2)) \wedge (\forall X3.(m1_subset_1 X3 k5_arytm_3) \Rightarrow \\ & (\neg(X0 = k10_arytm_3 X1 X3) \wedge (r3_arytm_3 X3 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k5_arytm_3) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k5_arytm_3) \Rightarrow (\forall X2.(m1_subset_1 X2 k5_arytm_3) \Rightarrow ((k10_arytm_3 \\ & X0 X1 = k10_arytm_3 X0 X2) \Rightarrow ((X0 = k11_arytm_3) \vee (X1 = X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1_subset_1 X0 k5_arytm_3) \wedge (m1_subset_1 \\ & X1 k5_arytm_3)) \Rightarrow (m1_subset_1 (k10_arytm_3 X0 X1) k5_arytm_3) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1_subset_1 X0 k5_arytm_3) \wedge (m1_subset_1 \\ & X1 k5_arytm_3)) \Rightarrow (k10_arytm_3 X0 X1 = k10_arytm_3 X1 X0) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k5_arytm_3) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k5_arytm_3) \Rightarrow (\forall X2.(m1_subset_1 X2 k5_arytm_3) \Rightarrow ((r3_arytm_3 \\ & (k10_arytm_3 X1 X0) (k10_arytm_3 X2 X0)) \Rightarrow ((X0 = k11_arytm_3) \vee (\\ & r3_arytm_3 X1 X2)))))) \end{aligned}$$