

l11_arytm_1

(TMZKL6bkCPf6wQTDFY9TWi2Z5FgD3hGrAJw)

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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 $k8_arytm_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_arytm_3 : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k2_arytm_2) \Rightarrow (\forall X2.(m1_subset_1 X2 k2_arytm_2) \Rightarrow ((r1_arytm_2 \\ & X0 X1) \Rightarrow (r1_arytm_2 (k8_arytm_2 X0 X2) (k8_arytm_2 X1 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k2_arytm_2) \Rightarrow (\forall X2.(m1_subset_1 X2 k2_arytm_2) \Rightarrow ((k8_arytm_2 \\ & X0 X1 = k8_arytm_2 X0 X2) \Rightarrow ((X0 = k11_arytm_3) \vee (X1 = X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k2_arytm_2) \Rightarrow (((r1_arytm_2 X0 X1) \wedge (r1_arytm_2 X1 X0)) \Rightarrow (X0 = \\ & X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1_subset_1 X0 k2_arytm_2) \wedge (m1_subset_1 \\ & X1 k2_arytm_2)) \Rightarrow (m1_subset_1 (k8_arytm_2 X0 X1) k2_arytm_2) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1_subset_1 X0 k2_arytm_2) \wedge (m1_subset_1 \\ & X1 k2_arytm_2)) \Rightarrow ((r1_arytm_2 X0 X1) \vee (r1_arytm_2 X1 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1_subset_1 X0 k2_arytm_2) \wedge (m1_subset_1 \\ & X1 k2_arytm_2)) \Rightarrow (k8_arytm_2 X0 X1 = k8_arytm_2 X1 X0) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1\ X0\ k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1\ k2_arytm_2) \Rightarrow (\forall X2.(m1_subset_1\ X2\ k2_arytm_2) \Rightarrow ((r1_arytm_2 \\ & (k8_arytm_2\ X0\ X1)\ (k8_arytm_2\ X0\ X2)) \Rightarrow ((X0 = k11_arytm_3) \vee (r1_arytm_2 \\ & X1\ X2)))))) \end{aligned}$$