

l31_arytm_2

(TMY2qWKqE6DESTmVro9k4SeSs2SqyPhGN21)

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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 $k5_arytm_3 : \iota$ be given. Let $r3_arytm_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.(m1_subset_1 X0 k5_arytm_3) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 k5_arytm_3) \Rightarrow ((\neg r3_arytm_3 X1 X0) \Leftrightarrow ((r3_arytm_3 X0 X1) \wedge (X0 \neq \\ X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_subset_1 X0 k2_arytm_2) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 k2_arytm_2) \Rightarrow (((X0 \in k5_arytm_3) \wedge (X1 \in k5_arytm_3)) \Rightarrow ((r1_arytm_2 \\ X0 X1) \Leftrightarrow (\exists X2.(m1_subset_1 X2 k5_arytm_3) \wedge (\exists X3.(\\ m1_subset_1 X3 k5_arytm_3) \wedge ((X0 = X2) \wedge ((X1 = X3) \wedge (r3_arytm_3 X2 \\ X3)))))) \wedge (((X0 \in k5_arytm_3) \Rightarrow ((X1 \in k5_arytm_3) \vee ((r1_arytm_2 \\ X0 X1) \Leftrightarrow (X0 \in X1)))) \wedge (((X1 \in k5_arytm_3) \Rightarrow ((X0 \in k5_arytm_3) \vee ((r1_arytm_2 \\ X0 X1) \Leftrightarrow (\neg X1 \in X0)))) \wedge (\neg(\neg(X0 \in k5_arytm_3) \wedge (X1 \in k5_arytm_3)) \wedge \\ ((\neg(X0 \in k5_arytm_3) \wedge (\neg X1 \in k5_arytm_3)) \wedge (\neg(\neg X0 \in k5_arytm_3) \wedge \\ (X1 \in k5_arytm_3)) \wedge (\neg(r1_arytm_2 X0 X1) \Leftrightarrow (r1_tarski X0 X1))))))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1) \Leftrightarrow ((r1_tarski X0 X1) \wedge (r1_tarski X1 X0)) \tag{3}$$

Theorem 1

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