

l46_orders_1 (TM-
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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $r1_relat_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_2 : \iota \Rightarrow o$ be given. Let $k2_wellord1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_relat_1 : \iota \Rightarrow \iota$ be given. Let $k6_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.(v1_relat_1 X2) \Rightarrow ((X0 \in k1_relat_1 (k2_wellord1 X2 X1)) \Rightarrow ((X0 \in k1_relat_1 X2) \wedge (X0 \in X1))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X1) \Rightarrow (k2_wellord1 X1 X0 = k6_relat_1 X0 (k5_relat_1 X1 X0)) \quad (2)$$

Assume the following.

$$\forall X0.(v1_relat_1 X0) \Rightarrow ((v1_relat_2 X0) \Leftrightarrow (\forall X1.(X1 \in k1_relat_1 X0) \Rightarrow (k4_tarski X1 X1 \in X0))) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X0) \Rightarrow (v1_relat_1 (k5_relat_1 X0 X1)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X0) \Rightarrow (v1_relat_1 (k2_wellord1 X0 X1)) \quad (5)$$

Assume the following.

$$\forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.(r1_relat_2 X0 X1) \Leftrightarrow (\forall X2.(X2 \in X1) \Rightarrow (k4_tarski X2 X2 \in X0))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X1) \Rightarrow (\forall X2.(v1_relat_1 X2) \Rightarrow ((X2 = k6_relat_1 X0 X1) \Leftrightarrow (\forall X3.\forall X4.(k4_tarski X3 X4 \in X2) \Leftrightarrow ((X4 \in X0) \wedge (k4_tarski X3 X4 \in X1)))))) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(v1_relat_1 \\ X2) \Rightarrow ((X2 = k5_relat_1 X0 X1) \Leftrightarrow (\forall X3.\forall X4.(k4_tarski \\ X3 X4 \in X2) \Leftrightarrow ((X3 \in X1) \wedge (k4_tarski X3 X4 \in X0)))))) \end{aligned} \quad (8)$$

Theorem 1

$$\forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.(r1_relat_2 X0 X1) \Rightarrow (v1_relat_2 \\ (k2_wellord1 X0 X1)))$$