

t57\_orders\_1  
(TMRe5eRCTQbcuaVk8q3EUXL1TpCinrsidZg)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $r8\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_2 : \iota \Rightarrow o$  be given. Let  $r4\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_orders\_1 : \iota \Rightarrow o$  be given. Let  $k2\_wellord1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v1\_relat\_2 X0) \Leftrightarrow (\forall X1.(X1 \in k1\_relat\_1 X0) \Rightarrow (k4\_tarski X1 X1 \in X0))) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r4\_orders\_1 X0 X1) \Leftrightarrow (\forall X2.\neg(r1\_tarski X2 X1) \wedge ((v3\_orders\_1 (k2\_wellord1 X0 X2)) \wedge (\forall X3.\neg(X3 \in X1) \wedge (\forall X4.(X4 \in X2) \Rightarrow (k4\_tarski X4 X3 \in X0)))))) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1) \Leftrightarrow (\forall X2.(X2 \in X0) \Rightarrow (X2 \in X1)) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r8\_orders\_1 X0 X1) \Leftrightarrow ((X1 \in k1\_relat\_1 X0) \wedge (\forall X2.(X2 \in k1\_relat\_1 X0) \Rightarrow ((X2 = X1) \vee (k4\_tarski X2 X1 \in X0)))) \quad (4)$$

**Theorem 1**

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.((X1 \in X2) \wedge ((r8\_orders\_1 X0 X1) \wedge (r1\_tarski X2 (k1\_relat\_1 X0)) \wedge (v1\_relat\_2 X0)))) \Rightarrow (r4\_orders\_1 X0 X2))$$