

t38\_orders\_1 (TM-  
SoG4yCVu5Wsq4YyJMV44nxkxLRg2VRSU)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $r3\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r6\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r8\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r4\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.((r2\_orders\_1 X0 X1) \wedge (r1\_tarski X2 X1)) \Rightarrow (r2\_orders\_1 X0 X2)) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r3\_orders\_1 X0 X1) \Rightarrow ((r1\_orders\_1 X0 X1) \wedge (r2\_orders\_1 X0 X1))) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.((r6\_relat\_2 X0 X1) \wedge (r1\_tarski X2 X1)) \Rightarrow (r6\_relat\_2 X0 X2)) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r3\_orders\_1 X0 X1) \Leftrightarrow ((r1\_relat\_2 X0 X1) \wedge ((r8\_relat\_2 X0 X1) \wedge ((r4\_relat\_2 X0 X1) \wedge (r6\_relat\_2 X0 X1))))) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r2\_orders\_1 X0 X1) \Leftrightarrow ((r1\_relat\_2 X0 X1) \wedge ((r8\_relat\_2 X0 X1) \wedge (r4\_relat\_2 X0 X1)))) \quad (5)$$

**Theorem 1**

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.((r3\_orders\_1 X0 X1) \wedge (r1\_tarski X2 X1)) \Rightarrow (r3\_orders\_1 X0 X2))$$