

# t54\_orders\_1 (TMbvAJoGkrtWWVRQXAQx- ctW6poz5aCbhuAH)

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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  $v4\_relat\_2 : \iota \Rightarrow o$  be given. Let  $r6\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_relat\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v4\_relat\_2 X0) \Leftrightarrow (\forall X1.\forall X2. ((k4\_tarski X1 X2 \in X0) \wedge (k4\_tarski X2 X1 \in X0)) \Rightarrow (X1 = X2))) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r8\_orders\_1 X0 X1) \Leftrightarrow ((X1 \in k1\_relat\_1 X0) \wedge (\forall X2.(X2 \in k1\_relat\_1 X0) \Rightarrow ((X2 = X1) \vee (k4\_tarski X2 X1 \in X0)))))) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r6\_orders\_1 X0 X1) \Leftrightarrow ((X1 \in k1\_relat\_1 X0) \wedge (\forall X2.\neg(X2 \in k1\_relat\_1 X0) \wedge ((X2 \neq X1) \wedge (k4\_tarski X1 X2 \in X0)))))) \quad (3)$$

## Theorem 1

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.((r8\_orders\_1 X0 X1) \wedge (v4\_relat\_2 X0)) \Rightarrow (r6\_orders\_1 X0 X1))$$