t53_orders_1 (TMWy8ikjrCj8WbuS97ceoajcr1vd8Hc2By9)

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Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $r9\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_relat\_2 : \iota \Rightarrow o$ be given. Let $r7\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_relat\_1 : \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0) \Rightarrow (\forall X1.(r9\_orders\_1\ X0\ X1) \Leftrightarrow ((X1 \in k1\_relat\_1\ X0) \wedge (\forall X2.(X2 \in k1\_relat\_1\ X0) \Rightarrow ((X2 = X1) \vee (k4\_tarski\ X1\ X2 \in X0))))) \tag{2}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0) \Rightarrow (\forall X1.(r7\_orders\_1\ X0\ X1) \Leftrightarrow ((X1 \in k1\_relat\_1\ X0) \wedge (\forall X2.\neg(X2 \in k1\_relat\_1\ X0) \wedge ((X2 \neq X1) \wedge (k4\_tarski\ X2\ X1 \in X0))))) \tag{3}$$

Theorem 1

$$\forall X0.(v1\_relat\_1\ X0) \Rightarrow (\forall X1.((r9\_orders\_1\ X0\ X1) \wedge (v4\_relat\_2\ X0)) \Rightarrow (r7\_orders\_1\ X0\ X1))$$