

# t58\_ordinal3 (TMMm- tyvryfCu2hb6d2YPGMHoqboCDV4GtMT)

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Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $r1\_ordinal1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_ordinal3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k10\_ordinal2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v2\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(X0 \in X1) \wedge (r1\_tarski X1 X0) \quad (1)$$

Assume the following.

$$\forall X0. (v3\_ordinal1 X0) \Rightarrow (k5\_ordinal3 X0 X0 = k1\_xboole\_0) \quad (2)$$

Assume the following.

$$\forall X0. (v3\_ordinal1 X0) \Rightarrow (\forall X1. (v3\_ordinal1 X1) \Rightarrow ((X0 \in X1) \Rightarrow (X1 = k10\_ordinal2 X0 (k5\_ordinal3 X1 X0)))) \quad (3)$$

Assume the following.

$$\forall X0. (v3\_ordinal1 X0) \Rightarrow (\forall X1. (v3\_ordinal1 X1) \Rightarrow (\forall X2. (v3\_ordinal1 X2) \Rightarrow ((r1\_ordinal1 X0 X1) \Rightarrow (r1\_ordinal1 (k10\_ordinal2 X0 X2) (k10\_ordinal2 X1 X2)))))) \quad (4)$$

Assume the following.

$$\forall X0. r1\_tarski k1\_xboole\_0 X0 \quad (5)$$

Assume the following.

$$\forall X0. (v3\_ordinal1 X0) \Rightarrow (\forall X1. (v3\_ordinal1 X1) \Rightarrow (\forall X2. (v3\_ordinal1 X2) \Rightarrow ((r1\_ordinal1 (k10\_ordinal2 X0 X1) (k10\_ordinal2 X0 X2)) \Rightarrow (r1\_ordinal1 X1 X2)))))) \quad (6)$$

Assume the following.

$$\forall X0. (v3\_ordinal1 X0) \Rightarrow (\forall X1. (v3\_ordinal1 X1) \Rightarrow (\neg(\neg X0 \in X1) \wedge ((X0 \neq X1) \wedge (\neg X1 \in X0)))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(v3\_ordinal1\ X1)\Rightarrow((X0 \in X1)\Rightarrow(v3\_ordinal1\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.(v1\_ordinal1\ X0)\Rightarrow(\forall X1.(v3\_ordinal1\ X1)\Rightarrow(\forall X2.(v3\_ordinal1\ X2)\Rightarrow(((r1\_tarski\ X0\ X1)\wedge(X1 \in X2))\Rightarrow(X0 \in X2)))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v3\_ordinal1\ X0)\wedge(v3\_ordinal1\ X1))\Rightarrow((r1\_ordinal1\ X0\ X1)\Leftrightarrow(r1\_tarski\ X0\ X1)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v3\_ordinal1\ X0)\wedge(v3\_ordinal1\ X1))\Rightarrow(v3\_ordinal1\ (k5\_ordinal3\ X0\ X1)) \quad (11)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0)\Rightarrow(\forall X1.(v3\_ordinal1\ X1)\Rightarrow(\forall X2.(v3\_ordinal1\ X2)\Rightarrow(((r1\_ordinal1\ X1\ X0)\Rightarrow((X2 = k5\_ordinal3\ X0\ X1)\Leftrightarrow(X0 = k10\_ordinal2\ X1\ X2)))\wedge((\neg r1\_ordinal1\ X1\ X0)\Rightarrow((X2 = k5\_ordinal3\ X0\ X1)\Leftrightarrow(X2 = k1\_xboole\_0)))))) \quad (12)$$

Assume the following.

$$k1\_xboole\_0 = the\ (\lambda X0 : \iota.v1\_xboole\_0\ X0) \quad (13)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0)\Rightarrow((v1\_ordinal1\ X0)\wedge(v2\_ordinal1\ X0)) \quad (14)$$

**Theorem 1**

$$\forall X0.(v3\_ordinal1\ X0)\Rightarrow(\forall X1.(v3\_ordinal1\ X1)\Rightarrow(\forall X2.(v3\_ordinal1\ X2)\Rightarrow(((r1\_ordinal1\ X0\ X1)\Rightarrow(r1\_ordinal1\ (k5\_ordinal3\ X2\ X1)\ (k5\_ordinal3\ X2\ X0))))))$$