

## t57\_ordinal5

(TMJ7SnBUFZXpex9dTSVKM9X2fAA4Gmx49D7)

October 27, 2020

Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k12\_ordinal2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_ordinal1 : \iota \Rightarrow \iota$  be given. Let  $k5\_ordinal5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $r1\_ordinal1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Assume the following.

$$\forall X0.(v3\_ordinal1 X0) \Rightarrow ((X0 \neq k1\_xboole\_0) \Rightarrow (k1\_xboole\_0 \in X0)) \quad (1)$$

Assume the following.

$$\forall X0.X0 \in k1\_ordinal1 X0 \quad (2)$$

Assume the following.

$$\forall X0.(v3\_ordinal1 X0) \Rightarrow ((k12\_ordinal2 X0 np\_1 = X0) \wedge (k12\_ordinal2 np\_1 X0 = np\_1)) \quad (3)$$

Assume the following.

$$\forall X0.(v3\_ordinal1 X0) \Rightarrow (k12\_ordinal2 X0 k1\_xboole\_0 = np\_1) \quad (4)$$

Assume the following.

$$\forall X0.(v3\_ordinal1 X0) \Rightarrow (\forall X1.(v3\_ordinal1 X1) \Rightarrow ((np\_1 \in X0) \Rightarrow (k12\_ordinal2 X0 X1 \in k12\_ordinal2 X0 (k1\_ordinal1 X1)))) \quad (5)$$

Assume the following.

$$\forall X0.(v3\_ordinal1 X0) \Rightarrow (\forall X1.(v3\_ordinal1 X1) \Rightarrow (\neg (X0 \neq k1\_xboole\_0) \wedge (k12\_ordinal2 X0 X1 = k1\_xboole\_0))) \quad (6)$$

Assume the following.

$$\forall X0.(v3\_ordinal1 X0) \Rightarrow (\forall X1.(v3\_ordinal1 X1) \Rightarrow ((X0 \in k1\_ordinal1 X1) \Leftrightarrow (r1\_ordinal1 X0 X1))) \quad (7)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.(v3\_ordinal1\ X1) \Rightarrow ((X0 \in X1) \Leftrightarrow (r1\_ordinal1\ (k1\_ordinal1\ X0\ X1)))) \quad (8)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0) \Rightarrow (v3\_ordinal1\ (k1\_ordinal1\ X0)) \quad (9)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.(v3\_ordinal1\ X1) \Rightarrow ((r1\_ordinal1\ X0\ X1) \vee (X1 \in X0))) \quad (10)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0) \Rightarrow ((X0 \in np\_1) \Rightarrow (X0 = k1\_xboole\_0)) \quad (11)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.(v3\_ordinal1\ X1) \Rightarrow (\neg (\neg X0 \in X1) \wedge ((X0 \neq X1) \wedge (\neg X1 \in X0)))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(v3\_ordinal1\ X1) \Rightarrow ((X0 \in X1) \Rightarrow (v3\_ordinal1\ X0)) \quad (13)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.(v3\_ordinal1\ X1) \Rightarrow (\forall X2.(v3\_ordinal1\ X2) \Rightarrow (((k6\_numbers \in X0) \wedge (k12\_ordinal2\ X0\ X1 \in k12\_ordinal2\ X0\ X2)) \Rightarrow (X1 \in X2)))) \quad (14)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (15)$$

Assume the following.

$$np\_1 = k1\_ordinal1\ k1\_xboole\_0 \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v3\_ordinal1\ X0) \wedge (v3\_ordinal1\ X1)) \Rightarrow (v3\_ordinal1\ (k5\_ordinal5\ X0\ X1)) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((v3\_ordinal1\ X0) \wedge (v3\_ordinal1\ X1)) \Rightarrow (v3\_ordinal1\ (k12\_ordinal2\ X0\ X1)) \quad (18)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.(v3\_ordinal1\ X1) \Rightarrow (\forall X2. \\
& (v3\_ordinal1\ X2) \Rightarrow (((np\_1 \in X1) \wedge (k6\_numbers \in X0)) \Rightarrow ((X2 = k5\_ordinal5 \\
& \quad X0\ X1) \Leftrightarrow ((r1\_ordinal1\ (k12\_ordinal2\ X1\ X2)\ X0) \wedge (\forall X3.(v3\_ordinal1 \\
& \quad X3) \Rightarrow ((r1\_ordinal1\ (k12\_ordinal2\ X1\ X3)\ X0) \Rightarrow (r1\_ordinal1\ X3\ X2)))))) \wedge \\
& ((\neg(np\_1 \in X1) \wedge (k6\_numbers \in X0)) \Rightarrow ((X2 = k5\_ordinal5\ X0\ X1) \Leftrightarrow (X2 = \\
& \quad k6\_numbers))))))
\end{aligned} \tag{19}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v3\_ordinal1\ X0) \wedge (v3\_ordinal1\ X1)) \Rightarrow ( \\
& \quad (r1\_ordinal1\ X0\ X1) \vee (r1\_ordinal1\ X1\ X0))
\end{aligned} \tag{20}$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (\neg X1 \in X0) \tag{21}$$

**Theorem 1**

$$\forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.(v3\_ordinal1\ X1) \Rightarrow (( \\
np\_1 \in X0) \Rightarrow (X1 \in k12\_ordinal2\ X0\ (k1\_ordinal1\ (k5\_ordinal5\ X1\ X0))))))$$