

## t27\_ordinal2

(TMUH<sub>a</sub>Ysf7B1gX4YWwVc5CG3jYWB6BANL5z1)

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Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k10\_ordinal2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v5\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_ordinal2 : \iota \Rightarrow o$  be given. Let  $k1\_ordinal2 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_ordinal1 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal2 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0 : \iota \Rightarrow \iota \Rightarrow \iota. \forall X1 : \iota \Rightarrow \iota \Rightarrow \iota. \forall X2. \forall X3 : \\
 & \iota \Rightarrow \iota. ((\forall X4. v3\_ordinal1 (X3 X4)) \wedge (v3\_ordinal1 X2) \wedge \\
 & ((\forall X4. \forall X5. v3\_ordinal1 (X1 X4 X5)) \wedge (\forall X4. \forall X5. \\
 & v3\_ordinal1 (X0 X4 X5)))) \Rightarrow ((\forall X4. (v3\_ordinal1 X4) \Rightarrow (\forall X5. \\
 & (v3\_ordinal1 X5) \Rightarrow ((X5 = X3 X4) \Leftrightarrow (\exists X6. ((v5\_ordinal1 X6) \wedge \\
 & ((v1\_relat\_1 X6) \wedge ((v1\_funct\_1 X6) \wedge (v1\_ordinal2 X6)))) \wedge ((X5 = \\
 & k1\_ordinal2 X6) \wedge ((k9\_xtuple\_0 X6 = k1\_ordinal1 X4) \wedge ((k1\_funct\_1 \\
 & X6 k1\_xboole\_0 = X2) \wedge ((\forall X7. (v3\_ordinal1 X7) \Rightarrow ((k1\_ordinal1 \\
 & X7 \in k1\_ordinal1 X4) \Rightarrow (k1\_funct\_1 X6 (k1\_ordinal1 X7) = X1 X7 (k1\_funct\_1 \\
 & X6 X7)))) \wedge (\forall X7. (v3\_ordinal1 X7) \Rightarrow (((X7 \in k1\_ordinal1 X4) \wedge \\
 & (v4\_ordinal1 X7) \Rightarrow ((X7 = k1\_xboole\_0) \vee (k1\_funct\_1 X6 X7 = X0 X7 \\
 & (k5\_relat\_1 X6 X7)))))))))) \Rightarrow (X3 k1\_xboole\_0 = X2))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. (v3\_ordinal1 X0) \Rightarrow (\forall X1. (v3\_ordinal1 X1) \Rightarrow (\forall X2. \\
 & (v3\_ordinal1 X2) \Rightarrow ((X2 = k10\_ordinal2 X0 X1) \Leftrightarrow (\exists X3. ((v5\_ordinal1 \\
 & X3) \wedge ((v1\_relat\_1 X3) \wedge ((v1\_funct\_1 X3) \wedge (v1\_ordinal2 X3)))) \wedge \\
 & ((X2 = k1\_ordinal2 X3) \wedge ((k9\_xtuple\_0 X3 = k1\_ordinal1 X1) \wedge ((k1\_funct\_1 \\
 & X3 k1\_xboole\_0 = X0) \wedge ((\forall X4. (v3\_ordinal1 X4) \Rightarrow ((k1\_ordinal1 \\
 & X4 \in k1\_ordinal1 X1) \Rightarrow (k1\_funct\_1 X3 (k1\_ordinal1 X4) = k1\_ordinal1 \\
 & (k1\_funct\_1 X3 X4)))) \wedge (\forall X4. (v3\_ordinal1 X4) \Rightarrow (((X4 \in k1\_ordinal1 \\
 & X1) \wedge (v4\_ordinal1 X4) \Rightarrow ((X4 = k1\_xboole\_0) \vee (k1\_funct\_1 X3 X4 = \\
 & k4\_ordinal2 (k5\_relat\_1 X3 X4))))))))))
 \end{aligned} \tag{2}$$

**Theorem 1**  $\forall X0.(v3\_ordinal1\ X0) \Rightarrow (k10\_ordinal2\ X0\ k1\_xboole\_0 = X0).$