

## t45\_ordinal2

(TMdnP8MrSef3pf86SqNykPWffDNaWC8XAPx)

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Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v4\_ordinal1 : \iota \Rightarrow o$  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  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_ordinal2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_ordinal2 : \iota \Rightarrow \iota$  be given. Let  $k1\_ordinal2 : \iota \Rightarrow \iota$  be given. Let  $k1\_ordinal1 : \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k11\_ordinal2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2 : \iota \Rightarrow \iota \Rightarrow \iota. \forall X3 : \iota \Rightarrow \\
 & \quad \iota \Rightarrow \iota. \forall X4. \forall X5 : \iota \Rightarrow \iota. ((\forall X6. (v3\_ordinal1 \\
 & \quad X6) \Rightarrow (\forall X7. (v3\_ordinal1 X7) \Rightarrow ((X7 = X5 X6) \Leftrightarrow (\exists X8. (( \\
 & \quad v5\_ordinal1 X8) \wedge ((v1\_relat\_1 X8) \wedge ((v1\_funct\_1 X8) \wedge (v1\_ordinal2 \\
 & \quad X8)))) \wedge ((X7 = k1\_ordinal2 X8) \wedge ((k9\_xtuple\_0 X8 = k1\_ordinal1 X6) \wedge \\
 & \quad ((k1\_funct\_1 X8 k1\_xboole\_0 = X4) \wedge ((\forall X9. (v3\_ordinal1 X9) \Rightarrow \\
 & \quad ((k1\_ordinal1 X9 \in k1\_ordinal1 X6) \Rightarrow (k1\_funct\_1 X8 (k1\_ordinal1 \\
 & \quad X9) = X3 X9 (k1\_funct\_1 X8 X9)))) \wedge (\forall X9. (v3\_ordinal1 X9) \Rightarrow \\
 & \quad (((X9 \in k1\_ordinal1 X6) \wedge (v4\_ordinal1 X9)) \Rightarrow ((X9 = k1\_xboole\_0) \vee \\
 & \quad (k1\_funct\_1 X8 X9 = X2 X9 (k5\_relat\_1 X8 X9))))))))) \wedge (((X1 \neq \\
 & \quad k1\_xboole\_0) \wedge (v4\_ordinal1 X1)) \wedge ((k9\_xtuple\_0 X0 = X1) \wedge (\forall X6. \\
 & \quad (v3\_ordinal1 X6) \Rightarrow ((X6 \in X1) \Rightarrow (k1\_funct\_1 X0 X6 = X5 X6)))))) \Rightarrow (X5 \\
 & \quad X1 = X2 X1 X0)
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.(v3\_ordinal1\ X1) \Rightarrow (\forall X2. \\
& (v3\_ordinal1\ X2) \Rightarrow ((X2 = k12\_ordinal2\ X0\ X1) \Leftrightarrow (\exists X3. ((v5\_ordinal1 \\
& X3) \wedge ((v1\_relat\_1\ X3) \wedge ((v1\_funct\_1\ X3) \wedge (v1\_ordinal2\ X3)))))) \wedge \\
& ((X2 = k1\_ordinal2\ X3) \wedge ((k9\_xtuple\_0\ X3 = k1\_ordinal1\ X1) \wedge ((k1\_funct\_1 \\
& X3\ k1\_xboole\_0 = np\_1) \wedge ((\forall X4.(v3\_ordinal1\ X4) \Rightarrow ((k1\_ordinal1 \\
& X4 \in k1\_ordinal1\ X1) \Rightarrow (k1\_funct\_1\ X3\ (k1\_ordinal1\ X4) = k11\_ordinal2 \\
& X0\ (k1\_funct\_1\ X3\ X4)))))) \wedge (\forall X4.(v3\_ordinal1\ X4) \Rightarrow (((X4 \in \\
& k1\_ordinal1\ X1) \wedge (v4\_ordinal1\ X4) \Rightarrow ((X4 = k1\_xboole\_0) \vee (k1\_funct\_1 \\
& X3\ X4 = k8\_ordinal2\ (k5\_relat\_1\ X3\ X4))))))))))
\end{aligned} \tag{2}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.(v3\_ordinal1\ X1) \Rightarrow (( \\
& v4\_ordinal1\ X0) \Rightarrow ((X0 = k1\_xboole\_0) \vee (\forall X2. ((v5\_ordinal1 \\
& X2) \wedge ((v1\_relat\_1\ X2) \wedge ((v1\_funct\_1\ X2) \wedge (v1\_ordinal2\ X2)))))) \Rightarrow \\
& (((k9\_xtuple\_0\ X2 = X0) \wedge (\forall X3.(v3\_ordinal1\ X3) \Rightarrow ((X3 \in X0) \Rightarrow \\
& (k1\_funct\_1\ X2\ X3 = k12\_ordinal2\ X1\ X3)))))) \Rightarrow (k12\_ordinal2\ X1\ X0 = \\
& k8\_ordinal2\ X2))))))
\end{aligned}$$