

t15_ordinal5

(TMHS2qyB4rYDs3SwiuBTEvR7oKPfBf7bCps)

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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 $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v5_ordinal1 : \iota \Rightarrow o$ 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 $k1_ordinal5 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k12_ordinal2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2 : \iota \Rightarrow \iota \Rightarrow \iota. \forall X3 : \iota \Rightarrow \\
 & \iota \Rightarrow \iota. \forall X4. \forall X5 : \iota \Rightarrow \iota. ((\forall X6. (v3_ordinal1 \\
 & X6) \Rightarrow (\forall X7. (v3_ordinal1 X7) \Rightarrow ((X7 = X5 X6) \Leftrightarrow (\exists X8. ((\\
 & v5_ordinal1 X8) \wedge ((v1_relat_1 X8) \wedge ((v1_funct_1 X8) \wedge (v1_ordinal2 \\
 & X8)))))) \wedge ((X7 = k1_ordinal2 X8) \wedge ((k9_xtuple_0 X8 = k1_ordinal1 X6) \wedge \\
 & ((k1_funct_1 X8 k1_xboole_0 = X4) \wedge ((\forall X9. (v3_ordinal1 X9) \Rightarrow \\
 & ((k1_ordinal1 X9 \in k1_ordinal1 X6) \Rightarrow (k1_funct_1 X8 (k1_ordinal1 \\
 & X9) = X3 X9 (k1_funct_1 X8 X9)))))) \wedge (\forall X9. (v3_ordinal1 X9) \Rightarrow \\
 & (((X9 \in k1_ordinal1 X6) \wedge (v4_ordinal1 X9) \Rightarrow ((X9 = k1_xboole_0) \vee \\
 & (k1_funct_1 X8 X9 = X2 X9 (k5_relat_1 X8 X9)))))))))) \wedge (((X1 \neq \\
 & k1_xboole_0) \wedge (v4_ordinal1 X1)) \wedge ((k9_xtuple_0 X0 = X1) \wedge (\forall X6. \\
 & (v3_ordinal1 X6) \Rightarrow ((X6 \in X1) \Rightarrow (k1_funct_1 X0 X6 = X5 X6)))))) \Rightarrow (X5 \\
 & X1 = X2 X1 X0)
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. (v3_ordinal1 X0) \Rightarrow (\forall X1. (v3_ordinal1 X1) \Rightarrow (\forall X2. \\
 & (v3_ordinal1 X2) \Rightarrow ((X2 = k1_ordinal5 X0 X1) \Leftrightarrow (\exists X3. ((v1_relat_1 \\
 & X3) \wedge ((v1_funct_1 X3) \wedge ((v5_ordinal1 X3) \wedge (v1_ordinal2 X3)))))) \wedge \\
 & ((X2 = k1_ordinal2 X3) \wedge ((k9_xtuple_0 X3 = k1_ordinal1 X1) \wedge ((k1_funct_1 \\
 & X3 k1_xboole_0 = np_1) \wedge ((\forall X4. (v3_ordinal1 X4) \Rightarrow ((k1_ordinal1 \\
 & X4 \in k1_ordinal1 X1) \Rightarrow (k1_funct_1 X3 (k1_ordinal1 X4) = k12_ordinal2 \\
 & X0 (k1_funct_1 X3 X4)))))) \wedge (\forall X4. (v3_ordinal1 X4) \Rightarrow (((X4 \in \\
 & k1_ordinal1 X1) \wedge (v4_ordinal1 X4) \Rightarrow ((X4 = k1_xboole_0) \vee (k1_funct_1 \\
 & X3 X4 = k8_ordinal2 (k5_relat_1 X3 X4))))))))))
 \end{aligned} \tag{2}$$

Theorem 1

$$\begin{aligned} & \forall X0.(v3_ordinal1\ X0) \Rightarrow (\forall X1.(v3_ordinal1\ X1) \Rightarrow ((\\ & \quad v4_ordinal1\ X0) \Rightarrow ((X0 = k1_xboole_0) \vee (\forall X2.((v1_relat_1 \\ & \quad X2) \wedge ((v1_funct_1\ X2) \wedge ((v5_ordinal1\ X2) \wedge (v1_ordinal2\ X2)))) \Rightarrow \\ & \quad ((k9_xtuple_0\ X2 = X0) \wedge (\forall X3.(v3_ordinal1\ X3) \Rightarrow ((X3 \in X0) \Rightarrow \\ & \quad (k1_funct_1\ X2\ X3 = k1_ordinal5\ X1\ X3)))) \Rightarrow (k1_ordinal5\ X1\ X0 = k8_ordinal2 \\ & \quad X2)))))) \end{aligned}$$