

175_classes2 (TMUw- PEPbz8zXsYpyCZscADDwLeHjKbVkVCE)

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Let $k16_classes2 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k13_classes2 : \iota$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $k1_ordinal1 : \iota \Rightarrow \iota$ be given. Let $k1_classes1 : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v4_ordinal1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k15_classes2 : \iota \Rightarrow \iota$ be given. Let $k3_card_3 : \iota \Rightarrow \iota$ be given. Let $k1_ordinal2 : \iota \Rightarrow \iota$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0 : \iota \Rightarrow \iota \Rightarrow \iota. \forall X1 : \iota \Rightarrow \iota \Rightarrow \iota. \forall X2. \forall X3 : \\
& \iota \Rightarrow \iota. (\forall X4. (v3_ordinal1 X4) \Rightarrow (\forall X5. (X5 = X3 X4) \Leftrightarrow \\
& (\exists X6. ((v5_ordinal1 X6) \wedge ((v1_relat_1 X6) \wedge (v1_funct_1 \\
& X6)))) \wedge ((X5 = k1_ordinal2 X6) \wedge ((k9_xtuple_0 X6 = k1_ordinal1 X4) \wedge \\
& ((k1_funct_1 X6 k1_xboole_0 = X2) \wedge ((\forall X7. (v3_ordinal1 X7) \Rightarrow \\
& ((k1_ordinal1 X7 \in k1_ordinal1 X4) \Rightarrow (k1_funct_1 X6 (k1_ordinal1 \\
& X7) = X1 X7 (k1_funct_1 X6 X7)))))) \wedge (\forall X7. (v3_ordinal1 X7) \Rightarrow \\
& (((X7 \in k1_ordinal1 X4) \wedge (v4_ordinal1 X7)) \Rightarrow ((X7 = k1_xboole_0) \vee \\
& (k1_funct_1 X6 X7 = X0 X7 (k5_relat_1 X6 X7)))))))))) \Rightarrow (X3 k1_xboole_0 = \\
& X2)
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2 : \iota \Rightarrow \iota \Rightarrow \iota.\forall X3 : \iota \Rightarrow \\
& \iota \Rightarrow \iota.\forall X4.\forall X5 : \iota \Rightarrow \iota.((\forall X6.(v3_ordinal1 \\
& X6) \Rightarrow (\forall X7.(X7 = X5 X6) \Leftrightarrow (\exists X8.((v5_ordinal1 X8) \wedge ((\\
& v1_relat_1 X8) \wedge (v1_funct_1 X8))) \wedge ((X7 = k1_ordinal2 X8) \wedge ((k9_xtuple_0 \\
& X8 = k1_ordinal1 X6) \wedge ((k1_funct_1 X8 k1_xboole_0 = X4) \wedge ((\forall X9. \\
& (v3_ordinal1 X9) \Rightarrow ((k1_ordinal1 X9 \in k1_ordinal1 X6) \Rightarrow (k1_funct_1 \\
& X8 (k1_ordinal1 X9) = X3 X9 (k1_funct_1 X8 X9)))) \wedge (\forall X9.(v3_ordinal1 \\
& X9) \Rightarrow (((X9 \in k1_ordinal1 X6) \wedge (v4_ordinal1 X9)) \Rightarrow ((X9 = k1_xboole_0) \vee \\
& (k1_funct_1 X8 X9 = X2 X9 (k5_relat_1 X8 X9))))))))) \wedge (((X1 \neq k1_xboole_0) \wedge \\
& (v4_ordinal1 X1) \wedge ((k9_xtuple_0 X0 = X1) \wedge (\forall X6.(v3_ordinal1 \\
& X6) \Rightarrow ((X6 \in X1) \Rightarrow (k1_funct_1 X0 X6 = X5 X6)))))) \Rightarrow (X5 X1 = X2 X1 X0) \\
& \tag{3}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v3_ordinal1 X0) \Rightarrow (\forall X1.(X1 = k16_classes2 X0) \Leftrightarrow \\
& (\exists X2.((v1_relat_1 X2) \wedge ((v5_ordinal1 X2) \wedge (v1_funct_1 \\
& X2))) \wedge ((X1 = k1_ordinal2 X2) \wedge ((k9_xtuple_0 X2 = k1_ordinal1 X0) \wedge \\
& ((k1_funct_1 X2 k1_xboole_0 = k13_classes2) \wedge ((\forall X3.(v3_ordinal1 \\
& X3) \Rightarrow ((k1_ordinal1 X3 \in k1_ordinal1 X0) \Rightarrow (k1_funct_1 X2 (k1_ordinal1 \\
& X3) = k1_classes1 (k1_funct_1 X2 X3)))) \wedge (\forall X3.(v3_ordinal1 \\
& X3) \Rightarrow (((X3 \in k1_ordinal1 X0) \wedge (v4_ordinal1 X3)) \Rightarrow ((X3 = k1_xboole_0) \vee \\
& (k1_funct_1 X2 X3 = k15_classes2 (k3_card_3 (k5_relat_1 X2 X3)))))))))) \\
& \tag{4}
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& (k16_classes2 k1_xboole_0 = k13_classes2) \wedge ((\forall X0.(v3_ordinal1 \\
& X0) \Rightarrow (k16_classes2 (k1_ordinal1 X0) = k1_classes1 (k16_classes2 \\
& X0))) \wedge (\forall X0.(v3_ordinal1 X0) \Rightarrow (\forall X1.((v1_relat_1 \\
& X1) \wedge ((v5_ordinal1 X1) \wedge (v1_funct_1 X1))) \Rightarrow (((v4_ordinal1 X0) \wedge \\
& ((k9_xtuple_0 X1 = X0) \wedge (\forall X2.(v3_ordinal1 X2) \Rightarrow ((X2 \in X0) \Rightarrow \\
& (k1_funct_1 X1 X2 = k16_classes2 X2)))))) \Rightarrow ((X0 = k1_xboole_0) \vee (\\
& k16_classes2 X0 = k15_classes2 (k3_card_3 X1))))))
\end{aligned}$$