

t27_hilbert3

(TMLye2nZpfZtb9f9VBWc1y6HGD3EvjcXfH1)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_hilbert3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $k2_funct_1 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v2_funct_1 X0) \Rightarrow (k2_funct_1 (k2_funct_1 X0) = X0)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\ & (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X0) \wedge ((v3_funct_2 \\ & X2 X0 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))))) \Rightarrow \\ & (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X1) \wedge ((v3_funct_2 \\ & X3 X1 X1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X1)))))) \Rightarrow \\ & (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 X0 X1) \wedge (m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow (k1_funct_1 (k2_funct_2 \\ & (k9_funct_2 X0 X1) (k1_hilbert3 X0 X1 X2 X3)) X4 = k1_partfun1 X0 X0 \\ & X0 X1 X2 (k1_partfun1 X0 X1 X1 X1 X4 (k2_funct_2 X1 X3)))))) \quad (2) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \quad (3) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 X0)\wedge \\ & ((v3_funct_2 X1 X0 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0))))))\Rightarrow(k2_funct_2 X0 X1 = k2_funct_1 X1) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v2_funct_1 X0)))\Rightarrow \\ & ((v1_relat_1 (k2_funct_1 X0))\wedge((v1_funct_1 (k2_funct_1 X0))\wedge \\ & (v2_funct_1 (k2_funct_1 X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & ((\neg v1_xboole_0 X1)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X0)\wedge \\ & ((v3_funct_2 X2 X0 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0))))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 X1 X1)\wedge((v3_funct_2 \\ & X3 X1 X1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X1))))))))))\Rightarrow \\ & ((v1_funct_1 (k1_hilbert3 X0 X1 X2 X3))\wedge((v1_funct_2 (k1_hilbert3 \\ & X0 X1 X2 X3) (k9_funct_2 X0 X1) (k9_funct_2 X0 X1))\wedge(v3_funct_2 (\\ & k1_hilbert3 X0 X1 X2 X3) (k9_funct_2 X0 X1) (k9_funct_2 X0 X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 X0)\wedge \\ & ((v3_funct_2 X1 X0 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0))))))\Rightarrow((v1_funct_1 (k2_funct_2 X0 X1))\wedge((v1_funct_2 (k2_funct_2 \\ & X0 X1) X0 X0)\wedge((v3_funct_2 (k2_funct_2 X0 X1) X0 X0)\wedge(m1_subset_1 \\ & (k2_funct_2 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge(v1_funct_1 X0))\Rightarrow((v1_relat_1 (\\ & k2_funct_1 X0))\wedge(v1_funct_1 (k2_funct_1 X0))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & ((\neg v1_xboole_0 X1)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X0)\wedge \\ & ((v3_funct_2 X2 X0 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0))))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 X1 X1)\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X1))))))))))\Rightarrow((v1_funct_1 (k1_hilbert3 \\ & X0 X1 X2 X3))\wedge((v1_funct_2 (k1_hilbert3 X0 X1 X2 X3) (k9_funct_2 \\ & X0 X1) (k9_funct_2 X0 X1))\wedge(m1_subset_1 (k1_hilbert3 X0 X1 X2 X3) \\ & (k1_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 X0 X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X0) \wedge ((v3_funct_2 \\
& X2 X0 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))))) \Rightarrow \\
& (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X1) \wedge (m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X1)))))) \Rightarrow (\forall X4.((v1_funct_1 \\
& X4) \wedge ((v1_funct_2 X4 (k9_funct_2 X0 X1) (k9_funct_2 X0 X1)) \wedge (m1_subset_1 \\
& X4 (k1_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 X0 \\
& X1)))))) \Rightarrow ((X4 = k1_hilbert3 X0 X1 X2 X3) \Leftrightarrow (\forall X5.((v1_funct_1 \\
& X5) \wedge ((v1_funct_2 X5 X0 X1) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))))) \Rightarrow (k1_funct_1 X4 X5 = k1_partfun1 X0 X0 X0 X1 (k2_funct_2 \\
& X0 X2) (k1_partfun1 X0 X1 X1 X1 X5 X3))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))) \Rightarrow (((v1_funct_1 X2) \wedge (v3_funct_2 X2 X0 X1)) \Rightarrow \\
& ((v1_funct_1 X2) \wedge ((v2_funct_1 X2) \wedge (v2_funct_2 X2 X1))))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2)
\end{aligned} \tag{12}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X0) \wedge ((v3_funct_2 \\
& X2 X0 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))))) \Rightarrow \\
& (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X1) \wedge ((v3_funct_2 \\
& X3 X1 X1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X1)))))) \Rightarrow \\
& (r2_funct_2 (k9_funct_2 X0 X1) (k9_funct_2 X0 X1) (k2_funct_2 (\\
& k9_funct_2 X0 X1) (k1_hilbert3 X0 X1 X2 X3)) (k1_hilbert3 X0 X1 (k2_funct_2 \\
& X0 X2) (k2_funct_2 X1 X3))))))
\end{aligned}$$