

t16_cfuncdom
(TMVTcHsnd41GXRmizxt76y85wFpcVqs8iZQ)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_numbers : \iota$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_cfuncdom : \iota \Rightarrow \iota$ be given. Let $k2_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_cfuncdom : \iota \Rightarrow \iota$ be given. Let $k1_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_complex1 : \iota \Rightarrow \iota$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k3_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m2_funct_2 X1 X0 k2_numbers \\
& (k9_funct_2 X0 k2_numbers)) \Rightarrow (\forall X2.(m2_funct_2 X2 X0 k2_numbers \\
& (k9_funct_2 X0 k2_numbers)) \Rightarrow (\forall X3.(m1_subset_1 X3 k2_numbers) \Rightarrow \\
& ((r2_funct_2 X0 k2_numbers X1 (k2_funcsdom X0 k2_numbers k2_numbers \\
& (k9_funct_2 X0 k2_numbers) (k3_cfuncdom X0) (k1_domain_1 k2_numbers \\
& (k9_funct_2 X0 k2_numbers) X3 X2))) \Leftrightarrow (\forall X4.(m1_subset_1 \\
& X4 X0) \Rightarrow (k3_funct_2 X0 k2_numbers X1 X4 = k9_complex1 X3 (k3_funct_2 \\
& X0 k2_numbers X2 X4))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m2_funct_2 X1 X0 k2_numbers \\
& (k9_funct_2 X0 k2_numbers)) \Rightarrow (\forall X2.(m2_funct_2 X2 X0 k2_numbers \\
& (k9_funct_2 X0 k2_numbers)) \Rightarrow (\forall X3.(m2_funct_2 X3 X0 k2_numbers \\
& (k9_funct_2 X0 k2_numbers)) \Rightarrow ((r2_funct_2 X0 k2_numbers X1 (k1_funcsdom \\
& X0 k2_numbers (k2_cfuncdom X0) X2 X3)) \Leftrightarrow (\forall X4.(m1_subset_1 \\
& X4 X0) \Rightarrow (k3_funct_2 X0 k2_numbers X1 X4 = k9_complex1 (k3_funct_2 \\
& X0 k2_numbers X2 X4) (k3_funct_2 X0 k2_numbers X3 X4))))))
\end{aligned} \tag{2}$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1_xcmplx_0 X0) \wedge ((v1_xcmplx_0 \\ & X1) \wedge (v1_xcmplx_0 X2))) \Rightarrow (k3_xcmplx_0 (k3_xcmplx_0 X0 X1) X2 = k3_xcmplx_0 \\ & X0 (k3_xcmplx_0 X1 X2)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow (r2_funct_2 X0 X1 X2 X2) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X1) \wedge (m1_funct_2 \\ & X2 X0 X1)) \Rightarrow (\forall X3. (m2_funct_2 X3 X0 X1 X2) \Leftrightarrow (m1_subset_1 X3 \\ & X2)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (\neg v1_xboole_0 X1) \Rightarrow (k9_funct_2 X0 X1 = k1_funct_2 \\ & X0 X1) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((m1_subset_1 X0 k2_numbers) \wedge (m1_subset_1 \\ & X1 k2_numbers)) \Rightarrow (k9_complex1 X0 X1 = k3_xcmplx_0 X0 X1) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\ & (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1)))))) \wedge (m1_subset_1 X3 X0))) \Rightarrow (k3_funct_2 X0 \\ & X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& ((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge((\neg v1_xboole_0 X2)\wedge(\\
& (\neg v1_xboole_0 X3)\wedge(((v1_funct_1 X4)\wedge((v1_funct_2 X4 (k2_zfmisc_1 \\
& X2 X3) (k9_funct_2 X0 X1))\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X2 X3) (k9_funct_2 X0 X1))))))\wedge(m1_subset_1 X5 (k2_zfmisc_1 \\
& X2 X3))))))\Rightarrow(k2_funcsdom X0 X1 X2 X3 X4 X5 = k1_funct_1 X4 X5)
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 \\
& X1)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 (k9_funct_2 \\
& X0 X1) (k9_funct_2 X0 X1)) (k9_funct_2 X0 X1))\wedge(m1_subset_1 X2 (\\
& k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 \\
& X0 X1)) (k9_funct_2 X0 X1))))))\wedge((m1_subset_1 X3 (k9_funct_2 X0 \\
& X1))\wedge(m1_subset_1 X4 (k9_funct_2 X0 X1))))\Rightarrow(k1_funcsdom X0 X1 \\
& X2 X3 X4 = k1_binop_1 X2 X3 X4)
\end{aligned} \tag{11}$$

Assume the following.

$$\neg v1_xboole_0 k2_numbers \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X1)\wedge(m1_funct_2 \\
X2 X0 X1))\Rightarrow(\exists X3.m2_funct_2 X3 X0 X1 X2) \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X1)\wedge(m1_funct_2 \\
& X2 X0 X1))\Rightarrow(\forall X3.(m2_funct_2 X3 X0 X1 X2)\Rightarrow((v1_funct_1 X3)\wedge \\
& ((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1))))))
\end{aligned} \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_funct_2 X2 X0 X1)\Rightarrow(\neg v1_xboole_0 \\
X2) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(m1_funct_2 (k9_funct_2 \\
X0 X1) X0 X1) \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\
& (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0))\Rightarrow(m1_subset_1 (\\
& k3_funct_2 X0 X1 X2 X3) X1)
\end{aligned} \tag{17}$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow & ((v1_funct_1 (k3_cfunclom X0)) \wedge \\ & ((v1_funct_2 (k3_cfunclom X0) (k2_zfmisc_1 k2_numbers (k9_funct_2 \\ & X0 k2_numbers)) (k9_funct_2 X0 k2_numbers)) \wedge (m1_subset_1 (k3_cfunclom \\ & X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 k2_numbers (k9_funct_2 \\ & X0 k2_numbers)) (k9_funct_2 X0 k2_numbers)))))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge ((\neg v1_xboole_0 X2) \wedge (\\ & (\neg v1_xboole_0 X3) \wedge ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 \\ & X2 X3) (k9_funct_2 X0 X1)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X2 X3) (k9_funct_2 X0 X1)))))) \wedge (m1_subset_1 X5 (k2_zfmisc_1 \\ & X2 X3)))))) \Rightarrow (m2_funct_2 (k2_funclom X0 X1 X2 X3 X4 X5) X0 X1 (k9_funct_2 \\ & X0 X1)) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow & ((v1_funct_1 (k2_cfunclom X0)) \wedge \\ & ((v1_funct_2 (k2_cfunclom X0) (k2_zfmisc_1 (k9_funct_2 X0 k2_numbers) \\ & (k9_funct_2 X0 k2_numbers)) (k9_funct_2 X0 k2_numbers)) \wedge (m1_subset_1 \\ & (k2_cfunclom X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 \\ & X0 k2_numbers) (k9_funct_2 X0 k2_numbers)) (k9_funct_2 X0 k2_numbers)))))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1_xboole_0 \\ & X1) \wedge (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 (k9_funct_2 \\ & X0 X1) (k9_funct_2 X0 X1)) (k9_funct_2 X0 X1)) \wedge (m1_subset_1 X2 (\\ & k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 \\ & X0 X1)) (k9_funct_2 X0 X1)))))) \wedge ((m1_subset_1 X3 (k9_funct_2 X0 \\ & X1)) \wedge (m1_subset_1 X4 (k9_funct_2 X0 X1)))))) \Rightarrow (m2_funct_2 (k1_funclom \\ & X0 X1 X2 X3 X4) X0 X1 (k9_funct_2 X0 X1)) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\ & ((\neg v1_xboole_0 X1) \wedge ((m1_subset_1 X2 X0) \wedge (m1_subset_1 X3 X1)))) \Rightarrow \\ & (m1_subset_1 (k1_domain_1 X0 X1 X2 X3) (k2_zfmisc_1 X0 X1)) \end{aligned} \quad (22)$$

Assume the following.

$$\forall X0. (m1_subset_1 X0 k2_numbers) \Rightarrow (v1_xcmplx_0 X0) \quad (23)$$

Theorem 1

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m2_funct_2 X1 X0 k2_numbers \\ & (k9_funct_2 X0 k2_numbers)) \Rightarrow (\forall X2. (m2_funct_2 X2 X0 k2_numbers \\ & (k9_funct_2 X0 k2_numbers)) \Rightarrow (\forall X3. (m1_subset_1 X3 k2_numbers) \Rightarrow \\ & (r2_funct_2 X0 k2_numbers (k1_funcsdom X0 k2_numbers (k2_cfunedom \\ & X0) (k2_funcsdom X0 k2_numbers k2_numbers (k9_funct_2 X0 k2_numbers) \\ & (k3_cfunedom X0) (k1_domain_1 k2_numbers (k9_funct_2 X0 k2_numbers) \\ & X3 X1)) X2) (k2_funcsdom X0 k2_numbers k2_numbers (k9_funct_2 X0 \\ & k2_numbers) (k3_cfunedom X0) (k1_domain_1 k2_numbers (k9_funct_2 \\ & X0 k2_numbers) X3 (k1_funcsdom X0 k2_numbers (k2_cfunedom X0) X1 \\ & X2)))))) \end{aligned}$$