

t8_limfunc4 (TMYt- bXyz45LDKzeyVWTyT6CXiK9JEjaWwbh)

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Let $v1_funct_1 : \iota \Rightarrow o$ 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 $k1_numbers : \iota$ be given. Let $v7_limfunc1 : \iota \Rightarrow o$ be given. Let $v5_limfunc1 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v8_limfunc1 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_limfunc1 : \iota \Rightarrow o$ be given. Let $v2_limfunc1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2. \forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 k5_numbers \\
& X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers X0)))))) \Rightarrow \\
& (\forall X4. ((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))) \Rightarrow (\forall X5. ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X1 X2)))) \Rightarrow ((r1_tarski (k2_relset_1 X0 X3) (k1_relset_1 \\
& X0 (k1_partfun1 X0 X1 X1 X2 X4 X5))) \Rightarrow (r2_funct_2 k5_numbers X2 (k8_funct_2 \\
& k5_numbers X2 X1 (k8_funct_2 k5_numbers X1 X0 X3 X4) X5) (k8_funct_2 \\
& k5_numbers X2 X0 X3 (k1_partfun1 X0 X1 X1 X2 X4 X5))))))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\
& X3) \Leftrightarrow (X2 = X3)) \\
& \tag{2}
\end{aligned}$$

Assume the following.

$$k5_numbers = k4_ordinal1 \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((v1_funct_1 X4)\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1))))\wedge((v1_funct_1 X5)\wedge(m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 X3))))))\Rightarrow(k1_partfun1 X0 X1 X2 X3 X4 X5 = k3_relat_1 X4 X5) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_funct_1 X0)\wedge(m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\ & k1_numbers k1_numbers))))\Rightarrow(\forall X1.((v1_funct_1 X1)\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers))))\Rightarrow(\forall X2. \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 k5_numbers k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers k1_numbers))))))\Rightarrow((r1_tarSKI \\ & (k2_relset_1 k1_numbers X2) (k1_relset_1 k1_numbers (k1_partfun1 \\ & k1_numbers k1_numbers k1_numbers k1_numbers X1 X0)))\Rightarrow((r1_tarSKI \\ & (k2_relset_1 k1_numbers X2) (k1_relset_1 k1_numbers X1))\wedge(r1_tarSKI \\ & (k2_relset_1 k1_numbers (k8_funct_2 k5_numbers k1_numbers k1_numbers \\ & X2 X1)) (k1_relset_1 k1_numbers X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\neg v1_xboole_0 k1_numbers \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 \\ & X2)\wedge(((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 X2)\wedge(m1_subset_1 X3 \\ & (k1_zfmisc_1 (k2_zfmisc_1 X0 X2))))))\wedge((v1_relat_1 X4)\wedge((v5_relat_1 \\ & X4 X1)\wedge(v1_funct_1 X4))))\Rightarrow((v1_funct_1 (k8_funct_2 X0 X1 X2 X3 \\ & X4))\wedge((v1_funct_2 (k8_funct_2 X0 X1 X2 X3 X4) X0 X1)\wedge(m1_subset_1 \\ & (k8_funct_2 X0 X1 X2 X3 X4) (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.v1_relat_1 (k3_relat_1 X0 X1) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((v1_funct_1 X4)\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1))))\wedge((v1_funct_1 X5)\wedge(m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 X3))))))\Rightarrow((v1_funct_1 (k1_partfun1 X0 X1 X2 X3 X4 X5))\wedge(m1_subset_1 \\ & (k1_partfun1 X0 X1 X2 X3 X4 X5) (k1_zfmisc_1 (k2_zfmisc_1 X0 X3)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad k1_numbers k1_numbers)))) \Rightarrow ((v5_limfunc1 X0) \Leftrightarrow ((\forall X1.(\\
& \quad m1_subset_1 X1 k1_numbers) \Rightarrow (\exists X2.(m1_subset_1 X2 k1_numbers) \wedge \\
& \quad ((\neg r1_xxreal_0 X2 X1) \wedge (X2 \in k1_relset_1 k1_numbers X0)))) \wedge (\forall X1. \\
& \quad ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 k5_numbers k1_numbers) \wedge (m1_subset_1 \\
& \quad \quad X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers k1_numbers)))))) \Rightarrow (((\\
& \quad v1_limfunc1 X1) \wedge (r1_tarSKI (k2_relset_1 k1_numbers X1) (k1_relset_1 \\
& \quad k1_numbers X0))) \Rightarrow (v2_limfunc1 (k8_funct_2 k5_numbers k1_numbers \\
& \quad \quad k1_numbers X1 X0))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad k1_numbers k1_numbers)))) \Rightarrow ((v8_limfunc1 X0) \Leftrightarrow ((\forall X1.(\\
& \quad m1_subset_1 X1 k1_numbers) \Rightarrow (\exists X2.(m1_subset_1 X2 k1_numbers) \wedge \\
& \quad ((\neg r1_xxreal_0 X1 X2) \wedge (X2 \in k1_relset_1 k1_numbers X0)))) \wedge (\forall X1. \\
& \quad ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 k5_numbers k1_numbers) \wedge (m1_subset_1 \\
& \quad \quad X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers k1_numbers)))))) \Rightarrow (((\\
& \quad v2_limfunc1 X1) \wedge (r1_tarSKI (k2_relset_1 k1_numbers X1) (k1_relset_1 \\
& \quad k1_numbers X0))) \Rightarrow (v2_limfunc1 (k8_funct_2 k5_numbers k1_numbers \\
& \quad \quad k1_numbers X1 X0))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad k1_numbers k1_numbers)))) \Rightarrow ((v7_limfunc1 X0) \Leftrightarrow ((\forall X1.(\\
& \quad m1_subset_1 X1 k1_numbers) \Rightarrow (\exists X2.(m1_subset_1 X2 k1_numbers) \wedge \\
& \quad ((\neg r1_xxreal_0 X1 X2) \wedge (X2 \in k1_relset_1 k1_numbers X0)))) \wedge (\forall X1. \\
& \quad ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 k5_numbers k1_numbers) \wedge (m1_subset_1 \\
& \quad \quad X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers k1_numbers)))))) \Rightarrow (((\\
& \quad v2_limfunc1 X1) \wedge (r1_tarSKI (k2_relset_1 k1_numbers X1) (k1_relset_1 \\
& \quad k1_numbers X0))) \Rightarrow (v1_limfunc1 (k8_funct_2 k5_numbers k1_numbers \\
& \quad \quad k1_numbers X1 X0))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \tag{13}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \tag{14}$$

Theorem 1

$$\begin{aligned} & \forall X0.((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\ & k1_numbers k1_numbers)))) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (m1_subset_1 \\ X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow (((v7_limfunc1 \\ & X0) \wedge ((v5_limfunc1 X1) \wedge (\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow \\ & (\exists X3.(m1_subset_1 X3 k1_numbers) \wedge (\neg r1_xxreal_0 X2 X3) \wedge \\ & (X3 \in k1_relset_1 k1_numbers (k1_partfun1 k1_numbers k1_numbers \\ & k1_numbers k1_numbers X0 X1)))))) \Rightarrow (v8_limfunc1 (k1_partfun1 \\ & k1_numbers k1_numbers k1_numbers k1_numbers X0 X1)))) \end{aligned}$$