

t69_limfunc4

(TMPx5R86vXTAHM18QpD77qY3vNDyVFwG9RL)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_limfunc3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_limfunc1 : \iota \Rightarrow o$ 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 $r1_limfunc3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_limfunc3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_limfunc1 : \iota \Rightarrow \iota$ be given. Let $r2_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r5_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_limfunc2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_limfunc2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k18_complex1 : \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
 & X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers)))) \Rightarrow \\
 & ((r2_limfunc2 X1 X0) \Leftrightarrow ((\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow \\
 & (\neg(\neg r1_xxreal_0 X0 X2) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow \\
 & (\neg(\neg r1_xxreal_0 X3 X2) \wedge (\neg r1_xxreal_0 X0 X3) \wedge (X3 \in k1_relset_1 \\
 & k1_numbers X1)))))) \wedge (\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow \\
 & (\exists X3.(m1_subset_1 X3 k1_numbers) \wedge (\neg r1_xxreal_0 X0 X3) \wedge \\
 & (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X4 X3) \wedge \\
 & ((\neg r1_xxreal_0 X0 X4) \wedge ((X4 \in k1_relset_1 k1_numbers X1) \wedge (r1_xxreal_0 \\
 & (k1_seq_1 X1 X4) X2))))))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& k1_numbers k1_numbers)))) \Rightarrow ((r5_limfunc2 X1 X0) \wedge ((v3_limfunc1 \\
& X2) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X3 X0) \wedge (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X3 X4) \wedge ((\neg r1_xxreal_0 X4 X0) \wedge (X4 \in k1_relset_1 k1_numbers (k1_partfun1 \\
& k1_numbers k1_numbers k1_numbers k1_numbers X1 X2)))))))))) \Rightarrow (\\
& (r4_limfunc2 (k1_partfun1 k1_numbers k1_numbers k1_numbers k1_numbers \\
& X1 X2) X0) \wedge (k2_limfunc2 (k1_partfun1 k1_numbers k1_numbers k1_numbers \\
& k1_numbers X1 X2) X0 = k4_limfunc1 X2)))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& k1_numbers k1_numbers)))) \Rightarrow ((r2_limfunc2 X1 X0) \wedge ((v3_limfunc1 \\
& X2) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X0 X3) \wedge (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X4 X3) \wedge ((\neg r1_xxreal_0 X0 X4) \wedge (X4 \in k1_relset_1 k1_numbers (k1_partfun1 \\
& k1_numbers k1_numbers k1_numbers k1_numbers X1 X2)))))))))) \Rightarrow (\\
& (r1_limfunc2 (k1_partfun1 k1_numbers k1_numbers k1_numbers k1_numbers \\
& X1 X2) X0) \wedge (k1_limfunc2 (k1_partfun1 k1_numbers k1_numbers k1_numbers \\
& k1_numbers X1 X2) X0 = k4_limfunc1 X2)))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\
& k1_numbers k1_numbers)))) \Rightarrow ((v3_limfunc1 X0) \Leftrightarrow ((\forall X1.(\\
& m1_subset_1 X1 k1_numbers) \Rightarrow (\exists X2.(m1_subset_1 X2 k1_numbers) \wedge \\
& ((\neg r1_xxreal_0 X2 X1) \wedge (X2 \in k1_relset_1 k1_numbers X0)))) \wedge (\exists X1. \\
& (m1_subset_1 X1 k1_numbers) \wedge (\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow \\
& (\neg(\neg r1_xxreal_0 X2 k6_numbers) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow \\
& (\exists X4.(m1_subset_1 X4 k1_numbers) \wedge ((\neg r1_xxreal_0 X4 X3) \wedge \\
& ((X4 \in k1_relset_1 k1_numbers X0) \wedge (r1_xxreal_0 X2 (k18_complex1 \\
& (k9_real_1 (k1_seq_1 X0 X4) X1))))))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& (((r1_limfunc2 X1 X0) \wedge ((r4_limfunc2 X1 X0) \wedge (k1_limfunc2 X1 X0 = \\
& k2_limfunc2 X1 X0))) \Rightarrow ((r1_limfunc3 X1 X0) \wedge ((k1_limfunc3 X1 X0 = \\
& k1_limfunc2 X1 X0) \wedge (k1_limfunc3 X1 X0 = k2_limfunc2 X1 X0))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\ & X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & ((r1_limfunc3 X1 X0) \Rightarrow ((r1_limfunc2 X1 X0) \wedge ((r4_limfunc2 X1 X0) \wedge \\ & ((k1_limfunc2 X1 X0 = k2_limfunc2 X1 X0) \wedge ((k1_limfunc3 X1 X0 = k1_limfunc2 \\ & X1 X0) \wedge (k1_limfunc3 X1 X0 = k2_limfunc2 X1 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\ & X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & ((r2_limfunc3 X1 X0) \Leftrightarrow ((r2_limfunc2 X1 X0) \wedge (r5_limfunc2 X1 X0))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (\\ & k1_relset_1 X0 X1 = k9_xtuple_0 X1) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))) \wedge ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 X3)))) \Rightarrow (k1_partfun1 X0 X1 X2 X3 X4 X5 = k3_relat_1 X4 X5) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))) \wedge ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 X3)))) \Rightarrow ((v1_funct_1 (k1_partfun1 X0 X1 X2 X3 X4 X5)) \wedge (m1_subset_1 \\ & (k1_partfun1 X0 X1 X2 X3 X4 X5) (k1_zfmisc_1 (k2_zfmisc_1 X0 X3)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \end{aligned} \quad (11)$$

Assume the following.

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

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\ X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ k1_numbers k1_numbers)))) \Rightarrow ((r2_limfunc3 X1 X0) \wedge ((v3_limfunc1 \\ X2) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\forall X4.(m1_subset_1 \\ X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X0 X3) \wedge (\neg r1_xxreal_0 X4 X0) \wedge \\ (\forall X5.(m1_subset_1 X5 k1_numbers) \Rightarrow (\forall X6.(m1_subset_1 \\ X6 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X5 X3) \wedge (\neg r1_xxreal_0 X0 X5) \wedge \\ ((X5 \in k1_relset_1 k1_numbers (k1_partfun1 k1_numbers k1_numbers \\ k1_numbers k1_numbers X1 X2)) \wedge (\neg r1_xxreal_0 X4 X6) \wedge (\neg r1_xxreal_0 \\ X6 X0) \wedge (X6 \in k1_relset_1 k1_numbers (k1_partfun1 k1_numbers k1_numbers \\ k1_numbers k1_numbers X1 X2)))))))))) \Rightarrow ((r1_limfunc3 (k1_partfun1 \\ k1_numbers k1_numbers k1_numbers k1_numbers X1 X2) X0) \wedge (k1_limfunc3 \\ (k1_partfun1 k1_numbers k1_numbers k1_numbers k1_numbers X1 X2) \\ X0 = k4_limfunc1 X2)))))) \end{aligned}$$