

t37_limfunc4

(TMS3URTuVd3awFaNYfWjKdLaf8GQvt5Rgca)

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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 $r3_limfunc3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7_limfunc1 : \iota \Rightarrow o$ 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 $r2_limfunc3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r6_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r5_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\ k1_numbers k1_numbers)))) \Rightarrow ((v7_limfunc1 X0) \Leftrightarrow ((\forall X1.(\\ m1_subset_1 X1 k1_numbers) \Rightarrow (\exists X2.(m1_subset_1 X2 k1_numbers) \wedge \\ ((\neg r1_xxreal_0 X1 X2) \wedge (X2 \in k1_relset_1 k1_numbers X0)))) \wedge (\forall X1. \\ (m1_subset_1 X1 k1_numbers) \Rightarrow (\exists X2.(m1_subset_1 X2 k1_numbers) \wedge \\ (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X2 X3) \wedge \\ ((X3 \in k1_relset_1 k1_numbers X0) \wedge (r1_xxreal_0 (k1_seq_1 X0 X3) \\ X1)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\ X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ k1_numbers k1_numbers)))) \Rightarrow (((r6_limfunc2 X1 X0) \wedge ((v7_limfunc1 \\ X2) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\ X3 X0) \wedge (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\ X3 X4) \wedge (\neg r1_xxreal_0 X4 X0) \wedge (X4 \in k1_relset_1 k1_numbers (k1_partfun1 \\ k1_numbers k1_numbers k1_numbers k1_numbers X1 X2)))))))))) \Rightarrow (\\ r5_limfunc2 (k1_partfun1 k1_numbers k1_numbers k1_numbers k1_numbers \\ X1 X2) X0))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& k1_numbers k1_numbers)))) \Rightarrow ((r3_limfunc2 X1 X0) \wedge ((v7_limfunc1 \\
& X2) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X0 X3) \wedge (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X4 X3) \wedge (\neg r1_xxreal_0 X0 X4) \wedge (X4 \in k1_relset_1 k1_numbers (k1_partfun1 \\
& k1_numbers k1_numbers k1_numbers k1_numbers X1 X2)))))) \Rightarrow (\\
& r2_limfunc2 (k1_partfun1 k1_numbers k1_numbers k1_numbers k1_numbers \\
& X1 X2) X0)))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& ((r3_limfunc3 X1 X0) \Leftrightarrow ((r3_limfunc2 X1 X0) \wedge (r6_limfunc2 X1 X0)))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& ((r2_limfunc3 X1 X0) \Leftrightarrow ((r2_limfunc2 X1 X0) \wedge (r5_limfunc2 X1 X0)))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& ((r6_limfunc2 X1 X0) \Leftrightarrow ((\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow \\
& (\neg(\neg r1_xxreal_0 X2 X0) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow \\
& (\neg(\neg r1_xxreal_0 X2 X3) \wedge (\neg r1_xxreal_0 X3 X0) \wedge (X3 \in k1_relset_1 \\
& k1_numbers X1)))))) \wedge (\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow \\
& (\exists X3.(m1_subset_1 X3 k1_numbers) \wedge (\neg r1_xxreal_0 X3 X0) \wedge \\
& (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X3 X4) \wedge \\
& (\neg r1_xxreal_0 X4 X0) \wedge ((X4 \in k1_relset_1 k1_numbers X1) \wedge (r1_xxreal_0 \\
& X2 (k1_seq_1 X1 X4))))))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& (((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))) \wedge ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X2 X3)))) \Rightarrow ((v1_funct_1 (k1_partfun1 X0 X1 X2 X3 X4 X5)) \wedge (m1_subset_1 \\
& (k1_partfun1 X0 X1 X2 X3 X4 X5) (k1_zfmisc_1 (k2_zfmisc_1 X0 X3))))
\end{aligned} \tag{7}$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\ X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ k1_numbers k1_numbers)))) \Rightarrow (((r3_limfunc3 X1 X0) \wedge ((v7_limfunc1 \\ X2) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\forall X4.(m1_subset_1 \\ X4 k1_numbers) \Rightarrow (\neg(\neg r1_xreal_0 X0 X3) \wedge (\neg r1_xreal_0 X4 X0) \wedge \\ (\forall X5.(m1_subset_1 X5 k1_numbers) \Rightarrow (\forall X6.(m1_subset_1 \\ X6 k1_numbers) \Rightarrow (\neg(\neg r1_xreal_0 X5 X3) \wedge (\neg r1_xreal_0 X0 X5) \wedge \\ ((X5 \in k1_relset_1 k1_numbers (k1_partfun1 k1_numbers k1_numbers \\ k1_numbers k1_numbers X1 X2)) \wedge (\neg r1_xreal_0 X4 X6) \wedge (\neg r1_xreal_0 \\ X6 X0) \wedge (X6 \in k1_relset_1 k1_numbers (k1_partfun1 k1_numbers k1_numbers \\ k1_numbers k1_numbers X1 X2)))))))))) \Rightarrow (r2_limfunc3 (k1_partfun1 \\ k1_numbers k1_numbers k1_numbers k1_numbers X1 X2) X0)))) \end{aligned}$$