

t20_limfunc3

(TMde81nJnzGQzX9o2FrGQfZix5shx2Lpvss)

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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 $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v7_valued_0 : \iota \Rightarrow o$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v8_valued_0 : \iota \Rightarrow o$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_seq_2 : \iota \Rightarrow o$ be given. Let $r2_limfunc3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r5_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers)))) \Rightarrow \\
& ((\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X0 X2) \wedge (\neg r1_xxreal_0 X3 X0) \wedge \\
& (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\forall X5.(m1_subset_1 \\
& X5 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X4 X2) \wedge (\neg r1_xxreal_0 X0 X4) \wedge \\
& ((X4 \in k9_xtuple_0 X1) \wedge (\neg r1_xxreal_0 X3 X5) \wedge (\neg r1_xxreal_0 X5 \\
& X0) \wedge (X5 \in k9_xtuple_0 X1)))))))))) \Leftrightarrow ((\forall X2.(m1_subset_1 \\
& X2 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X0 X2) \wedge (\forall X3.(m1_subset_1 \\
& X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X3 X2) \wedge (\neg r1_xxreal_0 X0 X3) \wedge \\
& (X3 \in k9_xtuple_0 X1)))))) \wedge (\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow \\
& (\neg(\neg r1_xxreal_0 X2 X0) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow \\
& (\neg(\neg r1_xxreal_0 X2 X3) \wedge (\neg r1_xxreal_0 X3 X0) \wedge (X3 \in k9_xtuple_0 \\
& X1))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& ((\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X2 \\
& X0) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X2 X3) \wedge ((\neg r1_xxreal_0 X3 X0) \wedge (X3 \in k1_relset_1 k1_numbers X1)))))) \Rightarrow \\
& ((\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow (\neg(v8_valued_0 (k2_partfun1 \\
& k1_numbers k1_numbers X1 (k2_rcomp_1 X0 (k7_real_1 X0 X2)))))) \wedge (\\
& \neg v1_seq_2 (k2_partfun1 k1_numbers k1_numbers X1 (k2_rcomp_1 X0 \\
& (k7_real_1 X0 X2)))))) \vee (r5_limfunc2 X1 X0)))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& ((\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X0 \\
& X2) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X3 X2) \wedge ((\neg r1_xxreal_0 X0 X3) \wedge (X3 \in k1_relset_1 k1_numbers X1)))))) \Rightarrow \\
& ((\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow (\neg(v7_valued_0 (k2_partfun1 \\
& k1_numbers k1_numbers X1 (k2_rcomp_1 (k9_real_1 X0 X2) X0)))))) \wedge (\\
& \neg v1_seq_2 (k2_partfun1 k1_numbers k1_numbers X1 (k2_rcomp_1 (\\
& k9_real_1 X0 X2) X0)))))) \vee (r2_limfunc2 X1 X0)))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& ((r2_limfunc3 X1 X0) \Leftrightarrow ((r2_limfunc2 X1 X0) \wedge (r5_limfunc2 X1 X0)))
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (k1_relset_1 X0 X1 = k9_xtuple_0 X1) \tag{5}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \tag{6}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \tag{7}$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\ X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & ((\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow (\forall X3.(m1_subset_1 \\ X3 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X0 X2) \wedge (\neg r1_xxreal_0 X3 X0) \wedge \\ & (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\forall X5.(m1_subset_1 \\ X5 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X4 X2) \wedge (\neg r1_xxreal_0 X0 X4) \wedge \\ & ((X4 \in k9_xtuple_0 X1) \wedge (\neg r1_xxreal_0 X3 X5) \wedge (\neg r1_xxreal_0 X5 \\ X0) \wedge (X5 \in k9_xtuple_0 X1)))))))))) \Rightarrow ((\forall X2.(m1_subset_1 \\ X2 k1_numbers) \Rightarrow (\neg(v7_valued_0 (k2_partfun1 k1_numbers k1_numbers \\ X1 (k2_rcomp_1 (k9_real_1 X0 X2) X0))) \wedge (v8_valued_0 (k2_partfun1 \\ k1_numbers k1_numbers X1 (k2_rcomp_1 X0 (k7_real_1 X0 X2)))) \wedge (\\ (\neg v1_seq_2 (k2_partfun1 k1_numbers k1_numbers X1 (k2_rcomp_1 \\ (k9_real_1 X0 X2) X0))) \wedge (\neg v1_seq_2 (k2_partfun1 k1_numbers k1_numbers \\ X1 (k2_rcomp_1 X0 (k7_real_1 X0 X2)))))) \vee (r2_limfunc3 X1 X0))) \end{aligned}$$