

## t21\_limfunc3

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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  $k6\_numbers : \iota$  be given. Let  $v5\_valued\_0 : \iota \Rightarrow o$  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  $v6\_valued\_0 : \iota \Rightarrow o$  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  $v7\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v8\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v3\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v2\_valued\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (\forall X1.((v1\_funct\_1 \\
 & X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \Rightarrow \\
 & ((\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow (\forall X3.(m1\_subset\_1 \\
 & X3 k1\_numbers) \Rightarrow (\neg(\neg r1\_xxreal\_0 X0 X2) \wedge (\neg r1\_xxreal\_0 X3 X0) \wedge \\
 & (\forall X4.(m1\_subset\_1 X4 k1\_numbers) \Rightarrow (\forall X5.(m1\_subset\_1 \\
 & X5 k1\_numbers) \Rightarrow (\neg(\neg r1\_xxreal\_0 X4 X2) \wedge (\neg r1\_xxreal\_0 X0 X4) \wedge \\
 & ((X4 \in k9\_xtuple\_0 X1) \wedge (\neg r1\_xxreal\_0 X3 X5) \wedge (\neg r1\_xxreal\_0 X5 \\
 & X0) \wedge (X5 \in k9\_xtuple\_0 X1)))))))))) \Rightarrow ((\forall X2.(m1\_subset\_1 \\
 & X2 k1\_numbers) \Rightarrow (\neg(v7\_valued\_0 (k2\_partfun1 k1\_numbers k1\_numbers \\
 & X1 (k2\_rcomp\_1 (k9\_real\_1 X0 X2) X0))) \wedge (v8\_valued\_0 (k2\_partfun1 \\
 & k1\_numbers k1\_numbers X1 (k2\_rcomp\_1 X0 (k7\_real\_1 X0 X2)))) \wedge \\
 & (\neg v1\_seq\_2 (k2\_partfun1 k1\_numbers k1\_numbers X1 (k2\_rcomp\_1 \\
 & (k9\_real\_1 X0 X2) X0))) \wedge (\neg v1\_seq\_2 (k2\_partfun1 k1\_numbers k1\_numbers \\
 & X1 (k2\_rcomp\_1 X0 (k7\_real\_1 X0 X2)))))) \vee (r2\_limfunc3 X1 X0))) \\
 & \tag{1}
 \end{aligned}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1 X2) \wedge \\
 & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (k2\_partfun1 \\
 & X0 X1 X2 X3 = k5\_relat\_1 X2 X3) \\
 & \tag{2}
 \end{aligned}$$

Assume the following.

$$v3\_membered\ k1\_numbers \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1\ X2)\wedge \\ & (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\Rightarrow((v1\_funct\_1 \\ & (k2\_partfun1\ X0\ X1\ X2\ X3))\wedge(m1\_subset\_1\ (k2\_partfun1\ X0\ X1\ X2\ X3) \\ & (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge(v3\_valued\_0\ X0))\Rightarrow((v1\_relat\_1\ X0)\wedge(v2\_valued\_0\ X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge((v2\_valued\_0 \\ & X0)\wedge(v6\_valued\_0\ X0))))\Rightarrow((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge \\ & ((v2\_valued\_0\ X0)\wedge(v8\_valued\_0\ X0)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge((v2\_valued\_0 \\ & X0)\wedge(v5\_valued\_0\ X0))))\Rightarrow((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge \\ & ((v2\_valued\_0\ X0)\wedge(v7\_valued\_0\ X0)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(v1\_relat\_1\ X2) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v3\_membered\ X1)\Rightarrow(\forall X2.(m1\_subset\_1 \\ & X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(v3\_valued\_0\ X2)) \end{aligned} \quad (9)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m1\_subset\_1\ X0\ k1\_numbers)\Rightarrow(\forall X1.((v1\_funct\_1 \\ & X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers))))\Rightarrow \\ & ((\forall X2.(m1\_subset\_1\ X2\ k1\_numbers)\Rightarrow(\forall X3.(m1\_subset\_1 \\ & X3\ k1\_numbers)\Rightarrow(\neg(\neg r1\_xxreal\_0\ X0\ X2)\wedge(\neg r1\_xxreal\_0\ X3\ X0)\wedge \\ & (\forall X4.(m1\_subset\_1\ X4\ k1\_numbers)\Rightarrow(\forall X5.(m1\_subset\_1 \\ & X5\ k1\_numbers)\Rightarrow(\neg(\neg r1\_xxreal\_0\ X4\ X2)\wedge(\neg r1\_xxreal\_0\ X0\ X4)\wedge \\ & ((X4 \in k9\_xtuple\_0\ X1)\wedge(\neg r1\_xxreal\_0\ X3\ X5)\wedge(\neg r1\_xxreal\_0\ X5 \\ & X0)\wedge(X5 \in k9\_xtuple\_0\ X1))))))))\Rightarrow((\forall X2.(m1\_subset\_1 \\ & X2\ k1\_numbers)\Rightarrow(\neg(\neg r1\_xxreal\_0\ X2\ k6\_numbers)\wedge((v5\_valued\_0 \\ & (k2\_partfun1\ k1\_numbers\ k1\_numbers\ X1\ (k2\_rcomp\_1\ (k9\_real\_1 \\ & X0\ X2)\ X0))\wedge((v6\_valued\_0\ (k2\_partfun1\ k1\_numbers\ k1\_numbers \\ & X1\ (k2\_rcomp\_1\ X0\ (k7\_real\_1\ X0\ X2))))\wedge(\neg v1\_seq\_2\ (k2\_partfun1 \\ & k1\_numbers\ k1\_numbers\ X1\ (k2\_rcomp\_1\ (k9\_real\_1\ X0\ X2)\ X0))\wedge \\ & \neg v1\_seq\_2\ (k2\_partfun1\ k1\_numbers\ k1\_numbers\ X1\ (k2\_rcomp\_1\ X0 \\ & (k7\_real\_1\ X0\ X2))))))))\vee(r2\_limfunc3\ X1\ X0)))) \end{aligned}$$