

# t10\_limfunc4 (TMXHwE- jdzbx6GVwhPL3VwHc57WbKsJzXmvV)

October 27, 2020

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  $v8\_limfunc1 : \iota \Rightarrow o$  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  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $v2\_limfunc1 : \iota \Rightarrow o$  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.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& \quad k1\_numbers k1\_numbers)))) \Rightarrow ((v8\_limfunc1 X0) \Leftrightarrow ((\forall X1.( \\
& \quad m1\_subset\_1 X1 k1\_numbers) \Rightarrow (\exists X2.(m1\_subset\_1 X2 k1\_numbers) \wedge \\
& \quad ((\neg r1\_xxreal\_0 X1 X2) \wedge (X2 \in k1\_relset\_1 k1\_numbers X0)))) \wedge (\forall X1. \\
& \quad ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers k1\_numbers) \wedge (m1\_subset\_1 \\
& \quad \quad X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow ((( \\
& \quad v2\_limfunc1 X1) \wedge (r1\_tarski (k2\_relset\_1 k1\_numbers X1) (k1\_relset\_1 \\
& \quad k1\_numbers X0))) \Rightarrow (v2\_limfunc1 (k8\_funct\_2 k5\_numbers k1\_numbers \\
& \quad \quad k1\_numbers X1 X0))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v4\_relat\_1 X2 X0) \wedge (v5\_relat\_1 X2 X1))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2)
\end{aligned} \tag{12}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& \quad k1\_numbers k1\_numbers)))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge (m1\_subset\_1 \\
& \quad X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \Rightarrow (((v8\_limfunc1 \\
& \quad X0) \wedge ((v8\_limfunc1 X1) \wedge (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow \\
& \quad (\exists X3.(m1\_subset\_1 X3 k1\_numbers) \wedge ((\neg r1\_xxreal\_0 X2 X3) \wedge \\
& \quad (X3 \in k1\_relset\_1 k1\_numbers (k1\_partfun1 k1\_numbers k1\_numbers \\
& \quad k1\_numbers k1\_numbers X0 X1)))))) \Rightarrow (v8\_limfunc1 (k1\_partfun1 \\
& \quad \quad k1\_numbers k1\_numbers k1\_numbers k1\_numbers X0 X1))))
\end{aligned}$$