

## t13\_seq\_1

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Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k1\_numbers : \iota$  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  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $k1\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v3\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v1\_membered : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge \\
 & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
 & (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers k1\_numbers) \wedge \\
 & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
 & (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers k1\_numbers) \wedge \\
 & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
 & ((r2\_funct\_2 k5\_numbers k1\_numbers X0 (k3\_valued\_1 k5\_numbers \\
 & k1\_numbers k1\_numbers X1 X2)) \Leftrightarrow (\forall X3.(m2\_subset\_1 X3 k1\_numbers \\
 & k5\_numbers) \Rightarrow (k1\_seq\_1 X0 X3 = k7\_real\_1 (k1\_seq\_1 X1 X3) (k1\_seq\_1 \\
 & X2 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. ((v1\_xcmplx\_0 X0) \wedge ((v1\_xcmplx\_0 \\
 & X1) \wedge (v1\_xcmplx\_0 X2))) \Rightarrow (k2\_xcmplx\_0 (k2\_xcmplx\_0 X0 X1) X2 = k2\_xcmplx\_0 \\
 & X0 (k2\_xcmplx\_0 X1 X2))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2)\wedge \\ & ((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))\wedge((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X0 X1)\wedge(m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\Rightarrow(r2\_funct\_2 X0 X1 X2 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k1\_numbers)\wedge(v1\_xreal\_0 X1))\Rightarrow(k7\_real\_1 X0 X1 = k2\_xcmplx\_0 X0 X1) \quad (4)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((v3\_membered \\ & X1)\wedge((v3\_membered X2)\wedge(((v1\_funct\_1 X3)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))\wedge((v1\_funct\_1 X4)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X2))))))\Rightarrow(k3\_valued\_1 X0 X1 X2 X3 X4 = k1\_valued\_1 \\ & X3 X4) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v3\_valued\_0 X0)))\Rightarrow(k1\_seq\_1 X0 X1 = k1\_funct\_1 X0 X1) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v1\_xboole\_0 \\ & X1)\wedge(v3\_membered X1))\wedge(((\neg v1\_xboole\_0 X2)\wedge(v3\_membered X2))\wedge \\ & (((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X0 X1)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))\wedge((v1\_funct\_1 X4)\wedge((v1\_funct\_2 X4 X0 X2)\wedge \\ & (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X2))))))))\Rightarrow((v1\_funct\_1 \\ & (k1\_valued\_1 X3 X4))\wedge(v1\_partfun1 (k1\_valued\_1 X3 X4) X0)) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v3\_valued\_0 X0)))\Rightarrow(v1\_xreal\_0 (k1\_funct\_1 X0 X1)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_valued\_0 X0)))\Rightarrow(v1\_xcmplx\_0 (k1\_funct\_1 X0 X1)) \quad (10)$$

Assume the following.

$$v3\_membered k1\_numbers \quad (11)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k1\_numbers \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((v3\_membered \\ & X1)\wedge((v3\_membered \ X2)\wedge(((v1\_funct\_1 \ X3)\wedge(m1\_subset\_1 \ X3 \ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 \ X0 \ X1))))\wedge((v1\_funct\_1 \ X4)\wedge(m1\_subset\_1 \ X4 \ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 \ X0 \ X2))))))\Rightarrow((v1\_funct\_1 \ (k3\_valued\_1 \ X0 \ X1 \ X2 \ X3 \\ & X4))\wedge(m1\_subset\_1 \ (k3\_valued\_1 \ X0 \ X1 \ X2 \ X3 \ X4) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ & X0 \ k1\_numbers)))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 \ X0)\wedge((v1\_funct\_1 \ X0)\wedge(v3\_valued\_0 \ X0)))\Rightarrow(m1\_subset\_1 \ (k1\_seq\_1 \ X0 \ X1) \ k1\_numbers) \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((v3\_membered \\ & X1)\wedge((v3\_membered \ X2)\wedge(((v1\_funct\_1 \ X3)\wedge(m1\_subset\_1 \ X3 \ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 \ X0 \ X1))))\wedge((v1\_funct\_1 \ X4)\wedge(m1\_subset\_1 \ X4 \ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 \ X0 \ X2))))))\Rightarrow(k3\_valued\_1 \ X0 \ X1 \ X2 \ X3 \ X4 = k3\_valued\_1 \\ & X0 \ X1 \ X2 \ X4 \ X3) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xcmplx\_0 \ X0)\wedge(v1\_xcmplx\_0 \ X1))\Rightarrow(k2\_xcmplx\_0 \ X0 \ X1 = k2\_xcmplx\_0 \ X1 \ X0) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1\_relat\_1 \ X0)\wedge((v1\_funct\_1 \ X0)\wedge(v1\_valued\_0 \\ & X0)))\wedge((v1\_relat\_1 \ X1)\wedge((v1\_funct\_1 \ X1)\wedge(v1\_valued\_0 \ X1))))\Rightarrow \\ & (k1\_valued\_1 \ X0 \ X1 = k1\_valued\_1 \ X1 \ X0) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.(v3\_membered \ X0)\Rightarrow(v1\_membered \ X0) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X1)))\Rightarrow(v1\_relat\_1 \ X2) \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 \ X0 \ X1)))\Rightarrow((v1\_partfun1 \ X2 \ X0)\Rightarrow(v1\_funct\_2 \ X2 \ X0 \ X1)) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.(v3\_membered\ X1)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(v3\_valued\_0\ X2)) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.(v1\_membered\ X1)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(v1\_valued\_0\ X2)) \quad (22)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_funct\_1\ X0)\wedge((v1\_funct\_2\ X0\ k5\_numbers\ k1\_numbers)\wedge \\ & (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))\Rightarrow \\ & (\forall X1.((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ k5\_numbers\ k1\_numbers)\wedge \\ & (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))\Rightarrow \\ & (\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ k5\_numbers\ k1\_numbers)\wedge \\ & (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))\Rightarrow \\ & (r2\_funct\_2\ k5\_numbers\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers \\ & k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X0\ X1) \\ & X2)\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X0\ (k3\_valued\_1 \\ & k5\_numbers\ k1\_numbers\ k1\_numbers\ X1\ X2)))))) \end{aligned}$$