

t98_finseq_6 (TMQRROXehemUtvpeRtQgj- mAUzsmdPFWyj9y)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_finseq_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_finseq_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_finseq_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_finseq_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_finseq_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_rfinseq : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k12_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k10_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k8_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1_subset_1 X2 X0) \Rightarrow (\forall X3.(m1_subset_1 X3 X0) \Rightarrow \\ & ((X1 \neq X2) \Rightarrow (k2_finseq_5 X0 (k3_finseq_4 X0 X1 X2 X3) X2 = k2_finseq_4 \\ & X0 X2 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1_subset_1 X2 X0) \Rightarrow (\forall X3.(m1_subset_1 X3 X0) \Rightarrow \\ & ((X1 \neq X2) \Rightarrow (k1_finseq_5 X0 (k3_finseq_4 X0 X1 X2 X3) X2 = k2_finseq_4 \\ & X0 X1 X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1_subset_1 X2 X0) \Rightarrow (k2_rfinseq X0 np_1 (k2_finseq_4 \\ & X0 X1 X2) = k12_finseq_1 X0 X2))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (k11_finseq_1 X0 X1 X2 = k7_finseq_1 \\ & (k9_finseq_1 X0) (k10_finseq_1 X1 X2)) \wedge (k11_finseq_1 X0 X1 X2 = \\ & k7_finseq_1 (k10_finseq_1 X0 X1) (k9_finseq_1 X2)) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(m2_finseq_1 X1 X0)\Leftrightarrow(m1_finseq_1 X1 X0) \quad (5)$$

Assume the following.

$$\forall X0.k9_finseq_1 X0 = k5_finseq_1 X0 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_finseq_1 X1 X0)\wedge(m1_finseq_1 X2 X0))\Rightarrow(k8_finseq_1 X0 X1 X2 = k7_finseq_1 X1 X2) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & ((m1_subset_1 X1 X0)\wedge((m1_subset_1 X2 X0)\wedge(m1_subset_1 X3 X0))))\Rightarrow \\ & (k3_finseq_4 X0 X1 X2 X3 = k11_finseq_1 X1 X2 X3) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 \\ & X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(k2_finseq_4 X0 X1 X2 = k10_finseq_1 \\ & X1 X2) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(m1_subset_1 X1 X0))\Rightarrow \\ & (k12_finseq_1 X0 X1 = k5_finseq_1 X1) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k10_xtuple_0 (k11_finseq_1 \\ & X0 X1 X2) = k1_enumset1 X0 X1 X2 \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & ((m1_subset_1 X1 X0)\wedge((m1_subset_1 X2 X0)\wedge(m1_subset_1 X3 X0))))\Rightarrow \\ & (m2_finseq_1 (k3_finseq_4 X0 X1 X2 X3) X0) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 \\ & X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(m2_finseq_1 (k2_finseq_4 X0 X1 X2) \\ & X0) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(m1_subset_1 X1 X0))\Rightarrow \\ & (m2_finseq_1 (k12_finseq_1 X0 X1) X0) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m2_finseq_1 X1 X0) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 X0) \Rightarrow (((X2 \in k10_xtuple_0 X1) \Rightarrow (k1_finseq_6 \\
& X0 X1 X2 = k8_finseq_1 X0 (k2_finseq_5 X0 X1 X2) (k2_rfinseq X0 np_1 \\
& (k1_finseq_5 X0 X1 X2)))) \wedge ((\neg X2 \in k10_xtuple_0 X1) \Rightarrow (k1_finseq_6 \\
& X0 X1 X2 = X1))))))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(X3 = k1_enumset1 \\
& X0 X1 X2) \Leftrightarrow (\forall X4.(X4 \in X3) \Leftrightarrow (\neg(X4 \neq X0) \wedge ((X4 \neq X1) \wedge (X4 \neq X2))))
\end{aligned} \tag{16}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 X0) \Rightarrow (\forall X3.(m1_subset_1 X3 X0) \Rightarrow \\
& ((X1 \neq X2) \Rightarrow (k1_finseq_6 X0 (k3_finseq_4 X0 X1 X2 X3) X2 = k3_finseq_4 \\
& X0 X2 X3 X2))))))
\end{aligned}$$