

l17_prvect_2 (TMaLDwAzKpo- hVq5iHiKF92mxzPhy13bd8UV)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $v1_prvect_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_card_3 : \iota \Rightarrow \iota$ be given. Let $k4_prvect_2 : \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $k4_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k8_prvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_prvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_prvect_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_prvect_2 : \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k5_prvect_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $m1_prvect_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_prvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $k1_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v5_rlvect_1 : \iota \Rightarrow o$ be given. Let $v6_rlvect_1 : \iota \Rightarrow o$ be given. Let $v7_rlvect_1 : \iota \Rightarrow o$ be given. Let $v8_rlvect_1 : \iota \Rightarrow o$ be given. Let $k3_finseq_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& ((\neg(v1_xboole_0 X1) \wedge (\neg(v1_xboole_0 X3) \wedge (((v1_funct_1 X4) \wedge ((v1_funct_2 X4 X0 X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \wedge ((v1_funct_1 X5) \wedge ((v1_funct_2 X5 X2 X3) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 X2 X3))))))))) \Rightarrow ((r1_funct_2 X0 X1 X2 X3 X4 X5) \Leftrightarrow (X4 = X5))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2. (m2_subset_1 \\ X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v1_relat_1 X0) \wedge ((v2_relat_1 \\ X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 X0) \wedge (v1_finseq_1 X0)))))) \wedge \\ ((m1_prvect_1 X1 X0) \wedge (m1_subset_1 X2 (k4_finseq_1 X0))) \Rightarrow (k9_prvect_1 \\ X0 X1 X2 = k1_funct_1 X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X1) \wedge \\ ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((m1_subset_1 X2 X0) \wedge \\ (m1_subset_1 X3 X0))) \Rightarrow (k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow \\ (k4_finseq_1 X0 = k9_xtuple_0 X0) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v2_rlvect_1 X0) \wedge (l1_algstr_0 \\ X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ X0)))) \Rightarrow (k3_rlvect_1 X0 X1 X2 = k1_algstr_0 X0 X1 X2) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v1_xboole_0 X0) \wedge (v1_relat_1 X0)) \Rightarrow (\neg v1_xboole_0 \\ (k9_xtuple_0 X0)) \end{aligned} \quad (8)$$

Assume the following.

$$(\neg v1_xboole_0 k4_ordinal1) \wedge (v3_ordinal1 k4_ordinal1) \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 \\ (u1_struct_0 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((\neg v1_xboole_0 X0) \wedge ((v1_relat_1 X0) \wedge \\ ((v2_relat_1 X0) \wedge (v1_funct_1 X0)))) \wedge (m1_subset_1 X1 (k9_xtuple_0 \\ X0))) \Rightarrow (\neg v1_xboole_0 (k1_funct_1 X0 X1)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_algstr_0 X0) \Rightarrow ((v1_funct_1 (u1_algstr_0 X0)) \wedge \\ ((v1_funct_2 (u1_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_algstr_0 \\ X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0. (l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \quad (13)$$

Assume the following.

$$\forall X0. (l1_rvect_1 X0) \Rightarrow (l2_algstr_0 X0) \quad (14)$$

Assume the following.

$$\forall X0. (l1_algstr_0 X0) \Rightarrow (l1_struct_0 X0) \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v1_relat_1 X0) \wedge ((v2_relat_1 \\ X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 X0) \wedge (v1_finseq_1 X0)))) \wedge \\ ((m1_prvect_1 X1 X0) \wedge (m1_subset_1 X2 (k4_finseq_1 X0)))) \Rightarrow ((v1_funct_1 \\ (k9_prvect_1 X0 X1 X2)) \wedge ((v1_funct_2 (k9_prvect_1 X0 X1 X2) (k2_zfmisc_1 \\ (k1_funct_1 X0 X2) (k1_funct_1 X0 X2)) (k1_funct_1 X0 X2)) \wedge (m1_subset_1 \\ (k9_prvect_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ (k1_funct_1 X0 X2) (k1_funct_1 X0 X2)) (k1_funct_1 X0 X2)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v1_relat_1 X0) \wedge ((v2_relat_1 \\ X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 X0) \wedge (v1_finseq_1 X0)))) \wedge ((m1_subset_1 X1 \\ (k4_card_3 X0)) \wedge (m1_subset_1 X2 (k9_xtuple_0 X0)))) \Rightarrow (m1_subset_1 \\ (k8_prvect_1 X0 X1 X2) (k1_funct_1 X0 X2)) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 \\ X0) \wedge ((v1_finseq_1 X0) \wedge (v1_prvect_2 X0)))) \Rightarrow (m1_prvect_1 (k6_prvect_2 \\ X0) (k4_prvect_2 X0)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 X0) \wedge ((v1_finseq_1 X0) \wedge (v1_prvect_2 X0)))))) \wedge (m1_subset_1 \\ & X1 (k4_finseq_1 (k4_prvect_2 X0)))) \Rightarrow ((\neg v2_struct_0 (k5_prvect_2 \\ & X0 X1)) \wedge ((v13_algstr_0 (k5_prvect_2 X0 X1)) \wedge ((v2_rlvect_1 (k5_prvect_2 \\ & X0 X1)) \wedge ((v3_rlvect_1 (k5_prvect_2 X0 X1)) \wedge ((v4_rlvect_1 (k5_prvect_2 \\ & X0 X1)) \wedge ((v5_rlvect_1 (k5_prvect_2 X0 X1)) \wedge ((v6_rlvect_1 (k5_prvect_2 \\ & X0 X1)) \wedge ((v7_rlvect_1 (k5_prvect_2 X0 X1)) \wedge ((v8_rlvect_1 (k5_prvect_2 \\ & X0 X1)) \wedge ((l1_rlvect_1 (k5_prvect_2 X0 X1))))))))))))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 \\ & X0) \wedge ((v1_finseq_1 X0) \wedge (v1_prvect_2 X0)))))) \Rightarrow ((v1_relat_1 (k4_prvect_2 \\ & X0)) \wedge ((v2_relat_1 (k4_prvect_2 X0)) \wedge ((v1_funct_1 (k4_prvect_2 \\ & X0)) \wedge ((\neg v1_xboole_0 (k4_prvect_2 X0)) \wedge (v1_finseq_1 (k4_prvect_2 \\ & X0))))))))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow \\ & (m1_subset_1 (k4_finseq_1 X0) (k1_zfmisc_1 k5_numbers)) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v2_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 X0) \wedge (v1_finseq_1 X0)))))) \wedge (m1_prvect_1 \\ & X1 X0)) \Rightarrow ((v1_funct_1 (k13_prvect_1 X0 X1)) \wedge ((v1_funct_2 (k13_prvect_1 \\ & X0 X1) (k2_zfmisc_1 (k4_card_3 X0) (k4_card_3 X0)) (k4_card_3 X0)) \wedge \\ & (m1_subset_1 (k13_prvect_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k4_card_3 X0) (k4_card_3 X0)) (k4_card_3 X0)))))) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge ((v2_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge \\ & ((\neg v1_xboole_0 X0) \wedge (v1_finseq_1 X0)))))) \Rightarrow (\forall X1. (m1_prvect_1 \\ & X1 X0) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 \\ & (k4_card_3 X0) (k4_card_3 X0)) (k4_card_3 X0)) \wedge (m1_subset_1 X2 \\ & (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k4_card_3 X0) (k4_card_3 \\ & X0)) (k4_card_3 X0)))))) \Rightarrow ((X2 = k13_prvect_1 X0 X1) \Leftrightarrow (\forall X3. \\ & (m1_subset_1 X3 (k4_card_3 X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 (k4_card_3 X0)) \Rightarrow (\forall X5. (m2_subset_1 X5 k5_numbers (k4_finseq_1 \\ & X0)) \Rightarrow (k8_prvect_1 X0 (k12_prvect_1 (k4_card_3 X0) X2 X3 X4) X5 = \\ & k5_binop_1 (k1_funct_1 X0 X5) (k9_prvect_1 X0 X1 X5) (k8_prvect_1 \\ & X0 X3 X5) (k8_prvect_1 X0 X4 X5)))))))))) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 \\
& X0) \wedge ((v1_finseq_1 X0) \wedge (v1_prvect_2 X0)))))) \Rightarrow (\forall X1.(m1_prvect_1 \\
& X1 (k4_prvect_2 X0)) \Rightarrow ((X1 = k6_prvect_2 X0) \Leftrightarrow ((k3_finseq_1 X1 = \\
& k3_finseq_1 (k4_prvect_2 X0)) \wedge (\forall X2.(m2_subset_1 X2 k5_numbers \\
& (k4_finseq_1 (k4_prvect_2 X0)) \Rightarrow (r1_funct_2 (k2_zfmisc_1 (k1_funct_1 \\
& (k4_prvect_2 X0) X2) (k1_funct_1 (k4_prvect_2 X0) X2)) (k1_funct_1 \\
& (k4_prvect_2 X0) X2) (k2_zfmisc_1 (u1_struct_0 (k5_prvect_2 X0 \\
& X2)) (u1_struct_0 (k5_prvect_2 X0 X2))) (u1_struct_0 (k5_prvect_2 \\
& X0 X2)) (k9_prvect_1 (k4_prvect_2 X0) X1 X2) (u1_algstr_0 (k5_prvect_2 \\
& X0 X2))))))))) \\
& \hspace{15em} (24)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_algstr_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_algstr_0 \\
& X0 X1 X2 = k5_binop_1 (u1_struct_0 X0) (u1_algstr_0 X0) X1 X2))) \\
& \hspace{15em} (25)
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((\neg v1_xboole_0 \\
& X0) \wedge ((v1_finseq_1 X0) \wedge (v1_prvect_2 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (k4_card_3 (k4_prvect_2 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\
& (k4_card_3 (k4_prvect_2 X0)) \Rightarrow (\forall X3.(m2_subset_1 X3 k5_numbers \\
& (k4_finseq_1 (k4_prvect_2 X0)) \Rightarrow ((k8_prvect_1 (k4_prvect_2 \\
& X0) (k12_prvect_1 (k4_card_3 (k4_prvect_2 X0)) (k13_prvect_1 \\
& (k4_prvect_2 X0) (k6_prvect_2 X0)) X1 X2) X3 = k1_binop_1 (u1_algstr_0 \\
& (k5_prvect_2 X0 X3)) (k8_prvect_1 (k4_prvect_2 X0) X1 X3) (k8_prvect_1 \\
& (k4_prvect_2 X0) X2 X3)) \wedge (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
& (k5_prvect_2 X0 X3)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 \\
& (k5_prvect_2 X0 X3)) \Rightarrow (((X4 = k8_prvect_1 (k4_prvect_2 X0) X1 X3) \wedge \\
& (X5 = k8_prvect_1 (k4_prvect_2 X0) X2 X3)) \Rightarrow (k8_prvect_1 (k4_prvect_2 \\
& X0) (k12_prvect_1 (k4_card_3 (k4_prvect_2 X0)) (k13_prvect_1 \\
& (k4_prvect_2 X0) (k6_prvect_2 X0)) X1 X2) X3 = k3_rlvect_1 (k5_prvect_2 \\
& X0 X3) X4 X5)))))))))
\end{aligned}$$