

l33_hahnban
(TMLrXza3Z31JLSp4EZ5Ry16dzTvGvtxnDFa)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ 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 $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $g1_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u1_rlvect_1 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $v2_hahnban : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_hahnban : \iota \Rightarrow \iota \Rightarrow o$ 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 $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $k3_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $v1_rlvect_1 : \iota \Rightarrow o$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v2_rlvect_1 X0) \wedge (l1_algstr_0 \\ & X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ & X0)))) \Rightarrow (k3_rlvect_1 X0 X1 X2 = k1_algstr_0 X0 X1 X2) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((m1_subset_1 X1 \\ & X0) \wedge (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) \\ & X0)))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 k1_numbers \\ & X0) X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & k1_numbers X0) X0)))))) \Rightarrow (\forall X4. \forall X5. \forall X6. \forall X7. \\ & (g1_rlvect_1 X0 X1 X2 X3 = g1_rlvect_1 X4 X5 X6 X7) \Rightarrow ((X0 = X4) \wedge ((X1 = \\ & X5) \wedge ((X2 = X6) \wedge (X3 = X7)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (m1_subset_1 (u2_struct_0 X0) (u1_struct_0 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_rlvect_1 X0) \Rightarrow & ((v1_funct_1 (u1_rlvect_1 X0)) \wedge \\ & ((v1_funct_2 (u1_rlvect_1 X0) (k2_zfmisc_1 k1_numbers (u1_struct_0 \\ & X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_rlvect_1 X0) (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 k1_numbers (u1_struct_0 X0)) (u1_struct_0 \\ & X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_algstr_0 X0) \Rightarrow & ((v1_funct_1 (u1_algstr_0 X0)) \wedge \\ & ((v1_funct_2 (u1_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_algstr_0 \\ & X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l1_rlvect_1 X0) \Rightarrow (l2_algstr_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3. & ((m1_subset_1 X1 \\ & X0) \wedge (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) \\ & X0)))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 k1_numbers \\ & X0) X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & k1_numbers X0) X0)))))) \Rightarrow ((v1_rlvect_1 (g1_rlvect_1 X0 X1 X2 X3)) \wedge \\ & (l1_rlvect_1 (g1_rlvect_1 X0 X1 X2 X3))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0. & ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 \\ & X0)))))))))) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (\\ & u1_struct_0 X0) k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) k1_numbers)))))) \Rightarrow ((v3_hahnban X1 X0) \Leftrightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 \\ & k1_numbers) \Rightarrow (k3_funct_2 (u1_struct_0 X0) k1_numbers X1 (k1_rlvect_1 \\ & X0 X2 X3) = k8_real_1 X3 (k3_funct_2 (u1_struct_0 X0) k1_numbers \\ & X1 X2)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 \\ & X0)))))))))) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (\\ & u1_struct_0 X0) k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) k1_numbers)))))) \Rightarrow ((v2_hahnban X1 X0) \Leftrightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (k3_funct_2 (u1_struct_0 X0) k1_numbers X1 \\ & (k3_rlvect_1 X0 X2 X3) = k7_real_1 (k3_funct_2 (u1_struct_0 X0) \\ & k1_numbers X1 X2) (k3_funct_2 (u1_struct_0 X0) k1_numbers X1 X3)))))) \\ & \hspace{15em} (10) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_rlvect_1 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(v1_xreal_0 X2) \Rightarrow \\ & (k1_rlvect_1 X0 X1 X2 = k1_binop_1 (u1_rlvect_1 X0) X2 X1))) \\ & \hspace{15em} (11) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_algstr_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_algstr_0 \\ & X0 X1 X2 = k5_binop_1 (u1_struct_0 X0) (u1_algstr_0 X0) X1 X2))) \\ & \hspace{15em} (12) \end{aligned}$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \hspace{15em} (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_rlvect_1 X0) \Rightarrow ((v1_rlvect_1 X0) \Rightarrow (X0 = g1_rlvect_1 \\ & (u1_struct_0 X0) (u2_struct_0 X0) (u1_algstr_0 X0) (u1_rlvect_1 \\ & X0))) \\ & \hspace{15em} (14) \end{aligned}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 \\ & X0)))))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 \\ & X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge \\ & ((v5_rlvect_1 X1) \wedge ((v6_rlvect_1 X1) \wedge ((v7_rlvect_1 X1) \wedge ((v8_rlvect_1 \\ & X1) \wedge (l1_rlvect_1 X1)))))))))) \Rightarrow ((X1 = g1_rlvect_1 (u1_struct_0 \\ & X0) (u2_struct_0 X0) (u1_algstr_0 X0) (u1_rlvect_1 X0)) \Rightarrow (\forall X2. \\ & ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) k1_numbers) \wedge \\ & ((v2_hahnban X2 X0) \wedge ((v3_hahnban X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (u1_struct_0 X0) k1_numbers)))))) \Rightarrow ((v1_funct_1 \\ & X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X1) k1_numbers) \wedge ((v2_hahnban \\ & X2 X1) \wedge ((v3_hahnban X2 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X1) k1_numbers)))))))))) \\ & \hspace{15em} \end{aligned}$$