

t69_matrixr2 (TMY-
CLCpbpT5C6LYHWk5mfJ7BeGRCzAVHrvH)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $v1_matrix_1 : \iota \Rightarrow o$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_finseq_2 : \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k1_matrix_1 : \iota \Rightarrow \iota$ be given. Let $k6_matrixr1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_matrixr2 : \iota \Rightarrow \iota$ be given. Let $k3_finseq_1 : \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v6_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v33_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v5_group_1 : \iota \Rightarrow o$ 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 $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_matrix_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_matrix_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $np_1 : \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $m1_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $v2_finseq_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_vectsp_1 : \iota$ be given. Let $v36_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_vectsp_1 : \iota \Rightarrow o$ be given. Let $v6_vectsp_1 : \iota \Rightarrow o$ be given. Let $v6_membered : \iota \Rightarrow o$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $m1_matrix_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k35_binop_2 : \iota$ be given. Let $k33_binop_2 : \iota$ be given. Let $k1_matrixr1 : \iota \Rightarrow \iota$ be given. Let $k2_matrixr1 : \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u3_struct_0 : \iota \Rightarrow \iota$ be given. Let $u2_struct_0 :$

$\iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 \\ & X0) \wedge ((v33_algstr_0 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge (\\ & (v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v4_vectsp_1 \\ & X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\ & ((v1_matrix_1 X1) \wedge (m2_finseq_1 X1 (k3_finseq_2 (u1_struct_0 \\ & X0)))) \Rightarrow (k4_matrix_3 X0 (k12_matrix_1 X0 (k3_finseq_1 X1)) X1 = \\ & X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 \\ & X0) \wedge ((v33_algstr_0 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge (\\ & (v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v4_vectsp_1 \\ & X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\ & ((v1_matrix_1 X1) \wedge (m2_finseq_1 X1 (k3_finseq_2 (u1_struct_0 \\ & X0)))) \Rightarrow (k4_matrix_3 X0 X1 (k12_matrix_1 X0 (k1_matrix_1 X1)) = \\ & X1)) \end{aligned} \quad (2)$$

Assume the following.

$$m1_subset_1 k1_xboole_0 k4_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 k1_numbers k5_numbers)) \wedge \\ & ((m1_subset_1 np_1 k5_numbers) \wedge (m1_subset_1 np_1 k1_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2. (m2_subset_1 \\ & X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. (m2_finseq_1 X1 X0) \Leftrightarrow (m1_finseq_1 X1 X0) \quad (6)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (7)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\exists X1. (m1_finseq_1 X1 X0) \wedge \\ & ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 k5_numbers) \wedge ((v5_relat_1 X1 \\ & X0) \wedge (v1_funct_1 X1) \wedge ((\neg v1_xboole_0 X1) \wedge ((v1_finset_1 X1) \wedge \\ & ((v1_finseq_1 X1) \wedge (v2_finseq_1 X1)))))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((v1_funct_1 \\
& X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge(((v1_funct_1 X2)\wedge \\
& (v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge((m1_subset_1 X3 X0)\wedge \\
& (m1_subset_1 X4 X0))))\Rightarrow(\forall X5.\forall X6.\forall X7.\forall X8. \\
& \forall X9.(g6_algstr_0 X0 X1 X2 X3 X4 = g6_algstr_0 X5 X6 X7 X8 X9)\Rightarrow \\
& ((X0 = X5)\wedge((X1 = X6)\wedge((X2 = X7)\wedge((X3 = X8)\wedge(X4 = X9))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& (\neg v6_struct_0 k2_vectsp_1)\wedge((v13_algstr_0 k2_vectsp_1)\wedge((\\
& v33_algstr_0 k2_vectsp_1)\wedge((v36_algstr_0 k2_vectsp_1)\wedge((v2_rlvect_1 \\
& k2_vectsp_1)\wedge((v3_rlvect_1 k2_vectsp_1)\wedge((v4_rlvect_1 k2_vectsp_1)\wedge \\
& ((v3_group_1 k2_vectsp_1)\wedge((v5_group_1 k2_vectsp_1)\wedge((v3_vectsp_1 \\
& k2_vectsp_1)\wedge((v5_vectsp_1 k2_vectsp_1)\wedge(v6_vectsp_1 k2_vectsp_1))))))))))
\end{aligned} \tag{11}$$

Assume the following.

$$(v36_algstr_0 k2_vectsp_1)\wedge(v4_vectsp_1 k2_vectsp_1) \tag{12}$$

Assume the following.

$$v6_membered k4_ordinal1 \tag{13}$$

Assume the following.

$$(\neg v2_struct_0 k2_vectsp_1)\wedge(v36_algstr_0 k2_vectsp_1) \tag{14}$$

Assume the following.

$$\neg v1_xboole_0 k1_numbers \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge \\
& (m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 \\
& X2 X0 X1)\Rightarrow(m1_subset_1 X2 X0))
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(m2_finseq_1 X1 X0)\Rightarrow((v1_funct_1 X1)\wedge(\\
& (v1_finseq_1 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers \\
& X0))))))
\end{aligned} \tag{17}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((v7_ordinal1 \\
& X1)\wedge(v7_ordinal1 X2)))\Rightarrow(\forall X3.(m1_matrix_1 X3 X0 X1 X2)\Rightarrow \\
& ((v1_matrix_1 X3)\wedge(m2_finseq_1 X3 (k3_finseq_2 X0))))
\end{aligned} \tag{18}$$

Assume the following.

$$m1_subset_1 \ k5_numbers \ (k1_zfmisc_1 \ k1_numbers) \quad (19)$$

Assume the following.

$$\begin{aligned} & (v1_funct_1 \ k35_binop_2) \wedge ((v1_funct_2 \ k35_binop_2 \ (k2_zfmisc_1 \\ & \ k1_numbers \ k1_numbers) \ k1_numbers) \wedge (m1_subset_1 \ k35_binop_2 \\ & (k1_zfmisc_1 \ (k2_zfmisc_1 \ (k2_zfmisc_1 \ k1_numbers \ k1_numbers) \\ & \ k1_numbers)))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & (v1_funct_1 \ k33_binop_2) \wedge ((v1_funct_2 \ k33_binop_2 \ (k2_zfmisc_1 \\ & \ k1_numbers \ k1_numbers) \ k1_numbers) \wedge (m1_subset_1 \ k33_binop_2 \\ & (k1_zfmisc_1 \ (k2_zfmisc_1 \ (k2_zfmisc_1 \ k1_numbers \ k1_numbers) \\ & \ k1_numbers)))) \end{aligned} \quad (21)$$

Assume the following.

$$(v36_algstr_0 \ k2_vectsp_1) \wedge (l6_algstr_0 \ k2_vectsp_1) \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_matrix_1 \ X0) \wedge (m1_finseq_1 \ X0 \ (k3_finseq_2 \ k1_numbers))) \Rightarrow \\ & ((v1_matrix_1 \ (k1_matrixr1 \ X0)) \wedge (m2_finseq_1 \ (k1_matrixr1 \ X0) \\ & \ (k3_finseq_2 \ (u1_struct_0 \ k2_vectsp_1)))) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 \ X0) \wedge (l6_algstr_0 \ X0)) \wedge \\ & (v7_ordinal1 \ X1)) \Rightarrow (m1_matrix_1 \ (k12_matrix_1 \ X0 \ X1) \ (u1_struct_0 \\ & \ X0) \ X1 \ X1) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_matrix_1 \ X0) \wedge (m2_finseq_1 \ X0 \ (k3_finseq_2 \ k1_numbers))) \Rightarrow \\ & (\forall X1. ((v1_matrix_1 \ X1) \wedge (m2_finseq_1 \ X1 \ (k3_finseq_2 \ k1_numbers))) \Rightarrow \\ & (k6_matrixr1 \ X0 \ X1 = k2_matrixr1 \ (k4_matrix_3 \ k2_vectsp_1 \ (k1_matrixr1 \\ & \ X0) \ (k1_matrixr1 \ X1)))) \end{aligned} \quad (25)$$

Assume the following.

$$k2_vectsp_1 = g6_algstr_0 \ k1_numbers \ k33_binop_2 \ k35_binop_2 \ np_1 \ k6_numbers \quad (26)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k5_numbers) \Rightarrow (k4_matrixr2 \ X0 = k2_matrixr1 \ (k12_matrix_1 \ k2_vectsp_1 \ X0)) \quad (27)$$

Assume the following.

$$\forall X0.((v1_matrix_1 X0) \wedge (m2_finseq_1 X0 (k3_finseq_2 (u1_struct_0 k2_vectsp_1)))) \Rightarrow (k2_matrixr1 X0 = X0) \quad (28)$$

Assume the following.

$$\forall X0.((v1_matrix_1 X0) \wedge (m2_finseq_1 X0 (k3_finseq_2 k1_numbers))) \Rightarrow (k1_matrixr1 X0 = X0) \quad (29)$$

Assume the following.

$$\forall X0. \forall X1. (v1_xboole_0 X0) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_xboole_0 X2)) \quad (30)$$

Assume the following.

$$\forall X0. (v6_membered X0) \Rightarrow (\forall X1. (m1_subset_1 X1 X0) \Rightarrow (v7_ordinal1 X1)) \quad (31)$$

Assume the following.

$$\forall X0. (l6_algstr_0 X0) \Rightarrow ((v36_algstr_0 X0) \Rightarrow (X0 = g6_algstr_0 (u1_struct_0 X0) (u1_algstr_0 X0) (u2_algstr_0 X0) (u3_struct_0 X0) (u2_struct_0 X0))) \quad (32)$$

Theorem 1

$$\forall X0. (m1_subset_1 X0 k5_numbers) \Rightarrow (\forall X1. (m1_subset_1 X1 k5_numbers) \Rightarrow (\forall X2. ((v1_matrix_1 X2) \wedge (m2_finseq_1 X2 (k3_finseq_2 k1_numbers))) \Rightarrow (((X0 = k1_matrix_1 X2) \Rightarrow (k6_matrixr1 X2 (k4_matrixr2 X0) = X2)) \wedge ((X1 = k3_finseq_1 X2) \Rightarrow (k6_matrixr1 (k4_matrixr2 X1) X2 = X2))))))$$