

t40_cc0sp2
(TMVR4PGXDbm8SuKjXjHfmYkAK5SJqNNheY2)

October 27, 2020

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 $v2_clvect_1 : \iota \Rightarrow o$ be given. Let $v3_clvect_1 : \iota \Rightarrow o$ be given. Let $v4_clvect_1 : \iota \Rightarrow o$ be given. Let $v5_clvect_1 : \iota \Rightarrow o$ be given. Let $l1_clvect_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v6_clvect_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_clvect_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $g1_clvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_csspace : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_c0sp1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_csspace : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ 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 $k2_numbers : \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_clvect_1 : \iota \Rightarrow \iota$ 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 $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k1_clvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_ideal_1 : \iota \Rightarrow \iota \Rightarrow o$ be

given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_clvect_1 X0) \wedge \\
& ((v3_clvect_1 X0) \wedge ((v4_clvect_1 X0) \wedge ((v5_clvect_1 X0) \wedge (l1_clvect_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\
& X0))) \Rightarrow (\forall X2.(\neg v1_xboole_0 X2) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 X2) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 \\
& X2 X2) X2) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X2 X2) X2)))))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 X5 (\\
& k2_zfmisc_1 k2_numbers X2) X2) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (\\
& k2_zfmisc_1 (k2_zfmisc_1 k2_numbers X2) X2)))))) \Rightarrow (((X1 = X2) \wedge (\\
& X3 = k4_struct_0 X0) \wedge ((X4 = k1_realset1 (u1_algstr_0 X0) X1) \wedge (\\
& X5 = k2_partfun1 (k2_zfmisc_1 k2_numbers (u1_struct_0 X0) (u1_struct_0 \\
& X0) (u1_clvect_1 X0) (k2_zfmisc_1 k2_numbers X1)))))) \Rightarrow (m1_clvect_1 \\
& (g1_clvect_1 X2 X3 X4 X5) X0))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((v2_rlvect_1 X0) \wedge (l1_algstr_0 \\
& X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\
& X0)))) \Rightarrow (k3_rlvect_1 X0 X1 X2 = k1_algstr_0 X0 X1 X2)
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2) \wedge \\
& (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k2_partfun1 \\
& X0 X1 X2 X3 = k5_relat_1 X2 X3)
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_clvect_1 X0) \Rightarrow (((v1_funct_1 (u1_clvect_1 X0)) \wedge \\
& ((v1_funct_2 (u1_clvect_1 X0) (k2_zfmisc_1 k2_numbers (u1_struct_0 \\
& X0) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_clvect_1 X0) (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 k2_numbers (u1_struct_0 X0) (u1_struct_0 \\
& X0))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \tag{5}$$

Assume the following.

$$\forall X0.(l1_clvect_1 X0) \Rightarrow (l2_algstr_0 X0) \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge \\ & ((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge((v2_clvect_1 \\ & X0)\wedge((v3_clvect_1 X0)\wedge((v4_clvect_1 X0)\wedge((v5_clvect_1 X0)\wedge \\ & (l1_clvect_1 X0))))))))))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))))\Rightarrow((v1_funct_1 (k9_csspace X0 X1))\wedge((v1_funct_2 (k9_csspace \\ & X0 X1) (k2_zfmisc_1 k2_numbers X1) X1)\wedge(m1_subset_1 (k9_csspace \\ & X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 k2_numbers X1) X1)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l2_algstr_0 X0))\wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow((v1_funct_1 \\ & (k1_c0sp1 X0 X1))\wedge((v1_funct_2 (k1_c0sp1 X0 X1) (k2_zfmisc_1 X1 \\ & X1) X1)\wedge(m1_subset_1 (k1_c0sp1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X1 X1) X1)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge \\ & ((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge((v2_clvect_1 \\ & X0)\wedge((v3_clvect_1 X0)\wedge((v4_clvect_1 X0)\wedge((v5_clvect_1 X0)\wedge \\ & (l1_clvect_1 X0))))))))))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))))\Rightarrow(m1_subset_1 (k10_csspace X0 X1) X1) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v2_rlvect_1 \\ & X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge((v2_clvect_1 X0)\wedge \\ & ((v3_clvect_1 X0)\wedge((v4_clvect_1 X0)\wedge((v5_clvect_1 X0)\wedge(l1_clvect_1 \\ & X0))))))))))\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))\Rightarrow((v6_clvect_1 X1 X0)\Rightarrow(k9_csspace X0 X1 = k5_relat_1 (u1_clvect_1 \\ & X0) (k2_zfmisc_1 k2_numbers X1)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v2_rlvect_1 \\ & X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge((v2_clvect_1 X0)\wedge \\ & ((v3_clvect_1 X0)\wedge((v4_clvect_1 X0)\wedge((v5_clvect_1 X0)\wedge(l1_clvect_1 \\ & X0))))))))))\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))\Rightarrow((v6_clvect_1 X1 X0)\Leftrightarrow((\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(((X2 \in X1)\wedge \\ & (X3 \in X1))\Rightarrow(k3_rlvect_1 X0 X2 X3 \in X1))))))\wedge(\forall X2.(v1_xcmplx_0 \\ & X2)\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow((X3 \in X1)\Rightarrow \\ & (k1_clvect_1 X0 X3 X2 \in X1)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l2_algstr_0 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((v1_ideal_1 \\ & X1 X0) \Rightarrow ((v1_xboole_0 X1) \vee (k1_c0sp1 X0 X1 = k1_realset1 (u1_algstr_0 \\ & X0 X1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l2_algstr_0 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((v1_ideal_1 \\ & X1 X0) \Leftrightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (((X2 \in X1) \wedge (X3 \in X1)) \Rightarrow (k1_algstr_0 \\ & X0 X2 X3 \in X1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_clvect_1 X0) \wedge \\ & ((v3_clvect_1 X0) \wedge ((v4_clvect_1 X0) \wedge ((v5_clvect_1 X0) \wedge (l1_clvect_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow ((v6_clvect_1 X1 X0) \Rightarrow ((v1_xboole_0 X1) \vee (k10_csspace X0 \\ & X1 = k4_struct_0 X0)))))) \end{aligned} \quad (14)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_clvect_1 X0) \wedge \\ & ((v3_clvect_1 X0) \wedge ((v4_clvect_1 X0) \wedge ((v5_clvect_1 X0) \wedge (l1_clvect_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow ((v6_clvect_1 X1 X0) \Rightarrow ((v1_xboole_0 X1) \vee (m1_clvect_1 (\\ & g1_clvect_1 X1 (k10_csspace X0 X1) (k1_c0sp1 X0 X1) (k9_csspace \\ & X0 X1) X0)))))) \end{aligned}$$