

t5_clopban2 (TMYhfxATSFcLgGRm-
sey6cDSQxC9nW9JT8Mz)

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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 $v3_normsp_0 : \iota \Rightarrow o$ be given. Let $v4_normsp_0 : \iota \Rightarrow o$ 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 $v8_clvect_1 : \iota \Rightarrow o$ be given. Let $l2_clvect_1 : \iota \Rightarrow o$ 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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v13_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_clopban1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_clopban1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_clopban2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $l2_normsp_0 : \iota \Rightarrow o$ be given. Let $l1_normsp_0 : \iota \Rightarrow o$ be given. Let $l1_clvect_1 : \iota \Rightarrow o$ be given. Assume the

following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_normsp_0 X0) \wedge \\
& ((v4_normsp_0 X0) \wedge ((v2_clvect_1 X0) \wedge ((v3_clvect_1 X0) \wedge ((v4_clvect_1 \\
& X0) \wedge ((v5_clvect_1 X0) \wedge ((v8_clvect_1 X0) \wedge (l2_clvect_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (u1_struct_0 X0) \\
& (u1_struct_0 X0)) \wedge ((v13_vectsp_1 X1 X0 X0) \wedge ((v1_clopban1 X1 X0 \\
& X0) \wedge ((v2_clopban1 X1 X0 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0)))))))))) \Rightarrow (\forall X2.((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X0)) \wedge ((v13_vectsp_1 \\
& X2 X0 X0) \wedge ((v1_clopban1 X2 X0 X0) \wedge ((v2_clopban1 X2 X0 X0) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))))))) \Rightarrow \\
& (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 X0) \\
& (u1_struct_0 X0)) \wedge ((v13_vectsp_1 X3 X0 X0) \wedge ((v1_clopban1 X3 X0 \\
& X0) \wedge ((v2_clopban1 X3 X0 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0)))))))))) \Rightarrow ((r2_funct_2 (u1_struct_0 \\
& X0) (u1_struct_0 X0) X3 (k1_clopban2 X0 X2 X1)) \Leftrightarrow (\forall X4.(m1_subset_1 \\
& X4 (u1_struct_0 X0)) \Rightarrow (k3_funct_2 (u1_struct_0 X0) (u1_struct_0 \\
& X0) X3 X4 = k3_funct_2 (u1_struct_0 X0) (u1_struct_0 X0) X1 (k3_funct_2 \\
& (u1_struct_0 X0) (u1_struct_0 X0) X2 X4))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\
& X3) \Rightarrow (r2_funct_2 X0 X1 X3 X2))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow (r2_funct_2 X0 X1 X2 X2)
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v13_algstr_0 \\
& X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge \\
& ((v3_normsp_0 X0)\wedge((v4_normsp_0 X0)\wedge((v2_clvect_1 X0)\wedge((v3_clvect_1 \\
& X0)\wedge((v4_clvect_1 X0)\wedge((v5_clvect_1 X0)\wedge((v8_clvect_1 X0)\wedge \\
& (l2_clvect_1 X0))))))))))\wedge(((v1_funct_1 X1)\wedge((v1_funct_2 \\
& X1 (u1_struct_0 X0) (u1_struct_0 X0))\wedge((v13_vectsp_1 X1 X0 X0)\wedge \\
& ((v1_clpban1 X1 X0 X0)\wedge((v2_clpban1 X1 X0 X0)\wedge(m1_subset_1 X1 \\
& (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0))))))\wedge \\
& ((v1_funct_1 X2)\wedge((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\
& X0))\wedge((v13_vectsp_1 X2 X0 X0)\wedge((v1_clpban1 X2 X0 X0)\wedge((v2_clpban1 \\
& X2 X0 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 X0))))))))))\Rightarrow(k1_clpban2 X0 X1 X2 = k3_relat_1 \\
& X1 X2)
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\exists X2.(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))\wedge((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge(\\
& (v5_relat_1 X2 X1)\wedge((v1_funct_1 X2)\wedge(v1_funct_2 X2 X0 X1))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 \\
& (u1_struct_0 X0))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(l1_struct_0 X0) \tag{7}$$

Assume the following.

$$\forall X0.(l2_normsp_0 X0)\Rightarrow((l1_normsp_0 X0)\wedge(l2_struct_0 X0)) \tag{8}$$

Assume the following.

$$\forall X0.(l2_clvect_1 X0)\Rightarrow((l1_clvect_1 X0)\wedge(l2_normsp_0 X0)) \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\
& (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))))\wedge(m1_subset_1 X3 X0)))\Rightarrow(m1_subset_1 (\\
& k3_funct_2 X0 X1 X2 X3) X1)
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 \\
& X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\
& ((v3_normsp_0 X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_clvect_1 X0) \wedge ((v3_clvect_1 \\
& X0) \wedge ((v4_clvect_1 X0) \wedge ((v5_clvect_1 X0) \wedge ((v8_clvect_1 X0) \wedge \\
& (l2_clvect_1 X0)))))))))) \wedge (((v1_funct_1 X1) \wedge ((v1_funct_2 \\
& X1 (u1_struct_0 X0) (u1_struct_0 X0)) \wedge ((v13_vectsp_1 X1 X0 X0) \wedge \\
& ((v1_clopan1 X1 X0 X0) \wedge ((v2_clopan1 X1 X0 X0) \wedge (m1_subset_1 X1 \\
& (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))) \wedge \\
& ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\
& X0)) \wedge ((v13_vectsp_1 X2 X0 X0) \wedge ((v1_clopan1 X2 X0 X0) \wedge ((v2_clopan1 \\
& X2 X0 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 X0))))))))) \Rightarrow ((v1_funct_1 (k1_clopan2 X0 \\
& X1 X2)) \wedge ((v1_funct_2 (k1_clopan2 X0 X1 X2) (u1_struct_0 X0) (u1_struct_0 \\
& X0)) \wedge ((v13_vectsp_1 (k1_clopan2 X0 X1 X2) X0 X0) \wedge ((v1_clopan1 \\
& (k1_clopan2 X0 X1 X2) X0 X0) \wedge ((v2_clopan1 (k1_clopan2 X0 X1 X2) \\
& X0 X0) \wedge (m1_subset_1 (k1_clopan2 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0))))))))))
\end{aligned} \tag{11}$$

Theorem 1

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_normsp_0 X0) \wedge \\
& ((v4_normsp_0 X0) \wedge ((v2_clvect_1 X0) \wedge ((v3_clvect_1 X0) \wedge ((v4_clvect_1 \\
& X0) \wedge ((v5_clvect_1 X0) \wedge ((v8_clvect_1 X0) \wedge (l2_clvect_1 X0)))))))))) \Rightarrow \\
& (\forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (u1_struct_0 X0) \\
& (u1_struct_0 X0)) \wedge ((v13_vectsp_1 X1 X0 X0) \wedge ((v1_clopan1 X1 X0 \\
& X0) \wedge ((v2_clopan1 X1 X0 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow (\forall X2. ((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X0)) \wedge ((v13_vectsp_1 \\
& X2 X0 X0) \wedge ((v1_clopan1 X2 X0 X0) \wedge ((v2_clopan1 X2 X0 X0) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow \\
& (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 X0) \\
& (u1_struct_0 X0)) \wedge ((v13_vectsp_1 X3 X0 X0) \wedge ((v1_clopan1 X3 X0 \\
& X0) \wedge ((v2_clopan1 X3 X0 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow (r2_funct_2 (u1_struct_0 \\
& X0) (u1_struct_0 X0) (k1_clopan2 X0 (k1_clopan2 X0 X3 X2) X1) (\\
& k1_clopan2 X0 X3 (k1_clopan2 X0 X2 X1))))))
\end{aligned}$$