

t70_tsep_1
(TMX6t4jd5rhC9ipX3D9F5owPEJRzaWZX9pf)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $m1_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_tsep_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tsep_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_tsep_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r1_connsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\
& (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((r1_connsp_1 \\
& X0 X1 X2) \Rightarrow (r1_connsp_1 X0 (k9_subset_1 (u1_struct_0 X0) X1 X3) (\\
& k9_subset_1 (u1_struct_0 X0) X2 X3))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge (m1_pre_topc X1 X0)) \Rightarrow (\\
& \forall X2.((\neg v2_struct_0 X2) \wedge (m1_pre_topc X2 X0)) \Rightarrow (\forall X3. \\
& ((\neg v2_struct_0 X3) \wedge (m1_pre_topc X3 X0)) \Rightarrow (((\neg r1_tsep_1 X1 X2) \Rightarrow \\
& (k2_tsep_1 X0 X1 X2 = k2_tsep_1 X0 X2 X1)) \wedge (((\neg r1_tsep_1 X1 X2) \wedge \\
& (\neg r1_tsep_1 (k2_tsep_1 X0 X1 X2) X3)) \vee ((\neg r1_tsep_1 X2 X3) \wedge (\neg r1_tsep_1 \\
& X1 (k2_tsep_1 X0 X2 X3)))))) \Rightarrow (k2_tsep_1 X0 (k2_tsep_1 X0 X1 X2) X3 = \\
& k2_tsep_1 X0 X1 (k2_tsep_1 X0 X2 X3))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m1_pre_topc X1 X0) \Rightarrow \\
& (m1_subset_1 (u1_struct_0 X1) (k1_zfmisc_1 (u1_struct_0 X0))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\
& X0)) \Rightarrow (k9_subset_1 X0 X1 X2 = k3_xboole_0 X1 X2)
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge (l1_pre_topc \\ & X0)) \wedge (((\neg v2_struct_0 X1) \wedge (m1_pre_topc X1 X0)) \wedge ((\neg v2_struct_0 \\ & X2) \wedge (m1_pre_topc X2 X0)))) \Rightarrow ((\neg v2_struct_0 (k2_tsep_1 X0 X1 X2)) \wedge \\ & ((v1_pre_topc (k2_tsep_1 X0 X1 X2)) \wedge (m1_pre_topc (k2_tsep_1 X0 \\ & X1 X2) X0))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_pre_topc X1 X0) \Rightarrow \\ & (\forall X2. (m1_pre_topc X2 X0) \Rightarrow ((r3_tsep_1 X0 X1 X2) \Leftrightarrow (\forall X3. \\ & (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (\forall X4. \\ & (m1_subset_1 X4 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (((X3 = u1_struct_0 \\ & X1) \wedge (X4 = u1_struct_0 X2)) \Rightarrow (r1_connsp_1 X0 X3 X4)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (m1_pre_topc X1 X0)) \Rightarrow (\forall X2. ((\neg v2_struct_0 \\ & X2) \wedge (m1_pre_topc X2 X0)) \Rightarrow ((\neg r1_tsep_1 X1 X2) \Rightarrow (\forall X3. ((\neg \\ & v2_struct_0 X3) \wedge (v1_pre_topc X3) \wedge (m1_pre_topc X3 X0))) \Rightarrow ((X3 = \\ & k2_tsep_1 X0 X1 X2) \Leftrightarrow (u1_struct_0 X3 = k3_xboole_0 (u1_struct_0 \\ & X1) (u1_struct_0 X2)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (8)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge (m1_pre_topc X1 X0)) \Rightarrow (\\ & \forall X2. ((\neg v2_struct_0 X2) \wedge (m1_pre_topc X2 X0)) \Rightarrow (\forall X3. \\ & ((\neg v2_struct_0 X3) \wedge (m1_pre_topc X3 X0)) \Rightarrow ((r3_tsep_1 X0 X2 X3) \Rightarrow \\ & ((r1_tsep_1 X2 X1) \vee ((r1_tsep_1 X3 X1) \vee ((r3_tsep_1 X0 (k2_tsep_1 \\ & X0 X2 X1) (k2_tsep_1 X0 X3 X1)) \wedge (r3_tsep_1 X0 (k2_tsep_1 X0 X1 X2) \\ & (k2_tsep_1 X0 X1 X3)))))))))) \end{aligned}$$