

t82_tsep_1 (TM- SjzatE8gDGmp7MbA2qGBChSoJ8BKdB5X1)

October 27, 2020

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 $r4_tsep_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_tsep_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r2_tsep_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\
& (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((r2_tsep_1 \\
& X0 X1 X2) \Rightarrow (r2_tsep_1 X0 (k4_subset_1 (u1_struct_0 X0) X1 X3) (k4_subset_1 \\
& (u1_struct_0 X0) X2 X3))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m1_pre_topc X1 X0) \Rightarrow (m1_subset_1 (u1_struct_0 X1) (k1_zfmisc_1 (u1_struct_0 X0)))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = k2_xboole_0 X1 X2) \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge (l1_pre_topc \\
& X0)) \wedge (((\neg v2_struct_0 X1) \wedge (m1_pre_topc X1 X0)) \wedge ((\neg v2_struct_0 \\
& X2) \wedge (m1_pre_topc X2 X0)))) \Rightarrow (((\neg v2_struct_0 (k1_tsep_1 X0 X1 X2)) \wedge \\
& ((v1_pre_topc (k1_tsep_1 X0 X1 X2)) \wedge (m1_pre_topc (k1_tsep_1 X0 \\
& X1 X2) X0)))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_pre_topc\ X1\ X0) \Rightarrow \\
& (\forall X2.(m1_pre_topc\ X2\ X0) \Rightarrow ((r4_tsep_1\ X0\ X1\ X2) \Leftrightarrow (\forall X3. \\
& (m1_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \Rightarrow (\forall X4. \\
& (m1_subset_1\ X4\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \Rightarrow (((X3 = u1_struct_0 \\
& X1) \wedge (X4 = u1_struct_0\ X2)) \Rightarrow (r2_tsep_1\ X0\ X3\ X4))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0\ X0) \wedge (l1_pre_topc\ X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0\ X1) \wedge (m1_pre_topc\ X1\ X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\
& X2) \wedge (m1_pre_topc\ X2\ X0)) \Rightarrow (\forall X3.((\neg v2_struct_0\ X3) \wedge ((v1_pre_topc \\
& X3) \wedge (m1_pre_topc\ X3\ X0)) \Rightarrow ((X3 = k1_tsep_1\ X0\ X1\ X2) \Leftrightarrow (u1_struct_0 \\
& X3 = k2_xboole_0\ (u1_struct_0\ X1)\ (u1_struct_0\ X2))))))
\end{aligned} \tag{6}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0\ X0) \wedge ((v2_pre_topc\ X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0\ X1) \wedge (m1_pre_topc\ X1\ X0)) \Rightarrow (\\
& \forall X2.((\neg v2_struct_0\ X2) \wedge (m1_pre_topc\ X2\ X0)) \Rightarrow (\forall X3. \\
& ((\neg v2_struct_0\ X3) \wedge (m1_pre_topc\ X3\ X0)) \Rightarrow ((r4_tsep_1\ X0\ X1\ X2) \Rightarrow \\
& (r4_tsep_1\ X0\ (k1_tsep_1\ X0\ X1\ X3)\ (k1_tsep_1\ X0\ X2\ X3))))))
\end{aligned}$$