

t44_yellow12 (TMHsRswPSSULvvhDTQQyM-
PEcHzmYTtwYyRK)

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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 $r1_t_0topsp : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_borsuk_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k14_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\
 & X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\
 & X1)))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 \\
 & (k2_borsuk_1 X0 X1)) (u1_struct_0 (k2_borsuk_1 X1 X0)))) \wedge (m1_subset_1 \\
 & X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 (k2_borsuk_1 X0 X1)) \\
 & (u1_struct_0 (k2_borsuk_1 X1 X0)))))) \Rightarrow ((r1_funct_2 (u1_struct_0 \\
 & (k2_borsuk_1 X0 X1)) (u1_struct_0 (k2_borsuk_1 X1 X0)) (k2_zfmisc_1 \\
 & (u1_struct_0 X0) (u1_struct_0 X1)) (k2_zfmisc_1 (u1_struct_0 \\
 & X1) (u1_struct_0 X0)) X2 (k14_funct_3 (k2_zfmisc_1 (u1_struct_0 \\
 & X0) (u1_struct_0 X1)) (u1_struct_0 X1) (u1_struct_0 X0) (k10_funct_3 \\
 & (u1_struct_0 X0) (u1_struct_0 X1)) (k9_funct_3 (u1_struct_0 X0) \\
 & (u1_struct_0 X1)))) \Rightarrow (v3_tops_2 X2 (k2_borsuk_1 X0 X1) (k2_borsuk_1 \\
 & X1 X0))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\
& X1))) \Rightarrow ((v1_funct_1 (k14_funct_3 (k2_zfmisc_1 (u1_struct_0 X0) \\
& (u1_struct_0 X1)) (u1_struct_0 X1) (u1_struct_0 X0) (k10_funct_3 \\
& (u1_struct_0 X0) (u1_struct_0 X1)) (k9_funct_3 (u1_struct_0 X0) \\
& (u1_struct_0 X1)))) \wedge ((v1_funct_2 (k14_funct_3 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X1)) (u1_struct_0 X1) (u1_struct_0 \\
& X0) (k10_funct_3 (u1_struct_0 X0) (u1_struct_0 X1)) (k9_funct_3 \\
& (u1_struct_0 X0) (u1_struct_0 X1))) (u1_struct_0 (k2_borsuk_1 \\
& X0 X1)) (u1_struct_0 (k2_borsuk_1 X1 X0))) \wedge ((v5_pre_topc (k14_funct_3 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)) (u1_struct_0 \\
& X1) (u1_struct_0 X0) (k10_funct_3 (u1_struct_0 X0) (u1_struct_0 \\
& X1)) (k9_funct_3 (u1_struct_0 X0) (u1_struct_0 X1))) (k2_borsuk_1 \\
& X0 X1) (k2_borsuk_1 X1 X0)) \wedge (m1_subset_1 (k14_funct_3 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X1)) (u1_struct_0 X1) (u1_struct_0 \\
& X0) (k10_funct_3 (u1_struct_0 X0) (u1_struct_0 X1)) (k9_funct_3 \\
& (u1_struct_0 X0) (u1_struct_0 X1))) (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 (k2_borsuk_1 X0 X1)) (u1_struct_0 (k2_borsuk_1 X1 \\
& X0))))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& ((\neg v1_xboole_0 X1) \wedge ((\neg v1_xboole_0 X3) \wedge (((v1_funct_1 X4) \wedge ((\\
& v1_funct_2 X4 X0 X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))))) \wedge ((v1_funct_1 X5) \wedge ((v1_funct_2 X5 X2 X3) \wedge (m1_subset_1 \\
& X5 (k1_zfmisc_1 (k2_zfmisc_1 X2 X3)))))) \Rightarrow (r1_funct_2 X0 X1 X2 \\
& X3 X4 X4)
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \tag{4}$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1)) \Rightarrow (\neg v1_xboole_0 (k2_zfmisc_1 X0 X1)) \tag{5}$$

Assume the following.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (l1_struct_0 X0) \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (v1_funct_1 (k9_funct_3 X0 X1)) \wedge ((v1_funct_2 \\
& (k9_funct_3 X0 X1) (k2_zfmisc_1 X0 X1) X0) \wedge (m1_subset_1 (k9_funct_3 \\
& X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) X0))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v2_pre_topc\ X0) \wedge (l1_pre_topc\ X0)) \wedge \\ & ((v2_pre_topc\ X1) \wedge (l1_pre_topc\ X1))) \Rightarrow ((v1_pre_topc\ (k2_borsuk_1 \\ & X0\ X1)) \wedge ((v2_pre_topc\ (k2_borsuk_1\ X0\ X1)) \wedge (l1_pre_topc\ (k2_borsuk_1 \\ & X0\ X1)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1_xboole_0 \\ & X1) \wedge ((\neg v1_xboole_0\ X2) \wedge (((v1_funct_1\ X3) \wedge ((v1_funct_2\ X3\ X0 \\ & X1) \wedge (m1_subset_1\ X3\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X1)))))) \wedge ((v1_funct_1 \\ & X4) \wedge ((v1_funct_2\ X4\ X0\ X2) \wedge (m1_subset_1\ X4\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ & X0\ X2)))))) \Rightarrow ((v1_funct_1\ (k14_funct_3\ X0\ X1\ X2\ X3\ X4)) \wedge ((v1_funct_2 \\ & (k14_funct_3\ X0\ X1\ X2\ X3\ X4)\ X0\ (k2_zfmisc_1\ X1\ X2)) \wedge (m1_subset_1 \\ & (k14_funct_3\ X0\ X1\ X2\ X3\ X4)\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ (k2_zfmisc_1 \\ & X1\ X2)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (v1_funct_1\ (k10_funct_3\ X0\ X1)) \wedge ((v1_funct_2 \\ & (k10_funct_3\ X0\ X1)\ (k2_zfmisc_1\ X0\ X1)\ X1) \wedge (m1_subset_1\ (k10_funct_3 \\ & X0\ X1)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ X0\ X1)\ X1)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_pre_topc\ X0) \Rightarrow (\forall X1. (l1_pre_topc\ X1) \Rightarrow ((\\ & r1.t.0topsp\ X0\ X1) \Leftrightarrow (\exists X2. ((v1_funct_1\ X2) \wedge ((v1_funct_2 \\ & X2\ (u1_struct_0\ X0)\ (u1_struct_0\ X1)) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1 \\ & (k2_zfmisc_1\ (u1_struct_0\ X0)\ (u1_struct_0\ X1)))))) \wedge (v3.tops_2 \\ & X2\ X0\ X1)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0\ X0) \wedge (\neg v1_xboole_0\ X1)) \Rightarrow \\ & (\forall X2. (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X1))) \Rightarrow \\ & (((v1_funct_1\ X2) \wedge (v1_funct_2\ X2\ X0\ X1)) \Rightarrow ((v1_funct_1\ X2) \wedge ((\\ & \neg v1_xboole_0\ X2) \wedge (v1_funct_2\ X2\ X0\ X1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (v1_xboole_0\ X0) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ X1\ X0))) \Rightarrow (v1_xboole_0\ X2)) \end{aligned} \quad (13)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0\ X0) \wedge ((v2_pre_topc\ X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v2_struct_0\ X1) \wedge ((v2_pre_topc\ X1) \wedge (l1_pre_topc \\ & X1))) \Rightarrow (r1.t.0topsp\ (k2_borsuk_1\ X0\ X1)\ (k2_borsuk_1\ X1\ X0))) \end{aligned}$$