

t19_borsuk_1 (TMZoAGPRcaWPUFAsAL-
szb9GfLz2Y3jPwVMQ)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_borsuk_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_tops_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_setfam_1 : \iota \Rightarrow \iota$ be given. Let $k8_borsuk_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_borsuk_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $v1_pre_topc : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\
& X1))) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\
& k2_borsuk_1 X0 X1)))) \Rightarrow ((v3_pre_topc X2 (k2_borsuk_1 X0 X1)) \Rightarrow \\
& (\forall X3. (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\
& (\forall X4. (m1_subset_1 X4 (k1_zfmisc_1 (u1_struct_0 X1))) \Rightarrow \\
& (((X3 = k7_relset_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 \\
& X1)) (u1_struct_0 X0) (k9_funct_3 (u1_struct_0 X0) (u1_struct_0 \\
& X1)) X2) \Rightarrow (v3_pre_topc X3 X0)) \wedge ((X4 = k7_relset_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X1)) (u1_struct_0 X1) (k10_funct_3 \\
& (u1_struct_0 X0) (u1_struct_0 X1)) X2) \Rightarrow (v3_pre_topc X4 X1))))))))) \quad (1)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\
& X1)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 \\
& (u1_struct_0 (k2_borsuk_1 X0 X1)))))) \Rightarrow (\forall X3. \neg (X3 \in k7_relset_1 \\
& (k9_setfam_1 (u1_struct_0 (k2_borsuk_1 X0 X1))) (k9_setfam_1 \\
& (u1_struct_0 X1)) (k9_borsuk_1 X0 X1) X2) \wedge (\forall X4.(m1_subset_1 \\
& X4 (k1_zfmisc_1 (u1_struct_0 (k2_borsuk_1 X0 X1)))))) \Rightarrow (\neg (X4 \in X2) \wedge \\
& (X3 = k7_relset_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)) \\
& (u1_struct_0 X1) (k10_funct_3 (u1_struct_0 X0) (u1_struct_0 X1) \\
& X4))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\
& X1)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 \\
& (u1_struct_0 (k2_borsuk_1 X0 X1)))))) \Rightarrow (\forall X3. \neg (X3 \in k7_relset_1 \\
& (k9_setfam_1 (u1_struct_0 (k2_borsuk_1 X0 X1))) (k9_setfam_1 \\
& (u1_struct_0 X0)) (k8_borsuk_1 X0 X1) X2) \wedge (\forall X4.(m1_subset_1 \\
& X4 (k1_zfmisc_1 (u1_struct_0 (k2_borsuk_1 X0 X1)))))) \Rightarrow (\neg (X4 \in X2) \wedge \\
& (X3 = k7_relset_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)) \\
& (u1_struct_0 X0) (k9_funct_3 (u1_struct_0 X0) (u1_struct_0 X1) \\
& X4))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. k9_setfam_1 X0 = k1_zfmisc_1 X0 \tag{4}$$

Assume the following.

$$\forall X0. \exists X1. (m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge (v1_xboole_0 X1) \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge \\
& (l1_pre_topc X0))) \wedge ((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\
& X1)))) \Rightarrow ((v1_funct_1 (k9_borsuk_1 X0 X1)) \wedge ((v1_funct_2 (k9_borsuk_1 \\
& X0 X1) (k9_setfam_1 (u1_struct_0 (k2_borsuk_1 X0 X1))) (k9_setfam_1 \\
& (u1_struct_0 X1)))) \wedge (m1_subset_1 (k9_borsuk_1 X0 X1) (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k9_setfam_1 (u1_struct_0 (k2_borsuk_1 X0 X1))) \\
& (k9_setfam_1 (u1_struct_0 X1))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge \\ & (l1_pre_topc X0))) \wedge ((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\ & X1)))) \Rightarrow ((v1_funct_1 (k8_borsuk_1 X0 X1)) \wedge ((v1_funct_2 (k8_borsuk_1 \\ & X0 X1) (k9_setfam_1 (u1_struct_0 (k2_borsuk_1 X0 X1))) (k9_setfam_1 \\ & (u1_struct_0 X0))) \wedge (m1_subset_1 (k8_borsuk_1 X0 X1) (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k9_setfam_1 (u1_struct_0 (k2_borsuk_1 X0 X1))) \\ & (k9_setfam_1 (u1_struct_0 X0))))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (m1_subset_1 X2 (\\ & k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (m1_subset_1 (k7_relset_1 \\ & X0 X1 X2 X3) (k1_zfmisc_1 X1)) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \wedge \\ & ((v2_pre_topc X1) \wedge (l1_pre_topc X1))) \Rightarrow ((v1_pre_topc (k2_borsuk_1 \\ & X0 X1)) \wedge ((v2_pre_topc (k2_borsuk_1 X0 X1)) \wedge (l1_pre_topc (k2_borsuk_1 \\ & X0 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow ((v1_tops_2 X1 X0) \Leftrightarrow (\forall X2. \\ & (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((X2 \in X1) \Rightarrow (v3_pre_topc \\ & X2 X0)))))) \end{aligned} \quad (10)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\ & X1))) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 \\ & (u1_struct_0 (k2_borsuk_1 X0 X1)))))) \Rightarrow ((v1_tops_2 X2 (k2_borsuk_1 \\ & X0 X1)) \Rightarrow ((v1_tops_2 (k7_relset_1 (k9_setfam_1 (u1_struct_0 (\\ & k2_borsuk_1 X0 X1))) (k9_setfam_1 (u1_struct_0 X0)) (k8_borsuk_1 \\ & X0 X1) X2) X0) \wedge (v1_tops_2 (k7_relset_1 (k9_setfam_1 (u1_struct_0 \\ & (k2_borsuk_1 X0 X1))) (k9_setfam_1 (u1_struct_0 X1)) (k9_borsuk_1 \\ & X0 X1) X2) X1)))))) \end{aligned}$$