

l44_topreal2
(TMcAp7AcgTHCgai7Wd319H293t5JxuyZon1)

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Let $l1_pre_topc : \iota \Rightarrow o$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $k9_setfam_1 : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $v5_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. k9_setfam_1 X0 = k1_zfmisc_1 X0 \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_struct_0 X0) \Rightarrow (\forall X1. (l1_struct_0 X1) \Rightarrow (\forall X2. \\ & ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\ & X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 X1)))))) \Rightarrow (((v2_struct_0 X1) \wedge (k1_relset_1 (\\ & u1_struct_0 X0) X2 = k2_struct_0 X0)) \Rightarrow (v2_struct_0 X0)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_struct_0 X0) \Rightarrow (\forall X1. (l1_struct_0 X1) \Rightarrow (\forall X2. \\ & ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\ & X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 X1)))))) \Rightarrow (((v2_struct_0 X0) \wedge (k2_relset_1 (\\ & u1_struct_0 X1) X2 = k2_struct_0 X1)) \Rightarrow (v2_struct_0 X1)))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (l1_struct_0 X0) \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(l1_pre_topc\ X1) \Rightarrow (\forall X2. \\
& ((v1_funct_1\ X2) \wedge ((v1_funct_2\ X2\ (u1_struct_0\ X0)\ (u1_struct_0 \\
& X1)) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0 \\
& X0)\ (u1_struct_0\ X1)))))) \Rightarrow ((v3_tops_2\ X2\ X0\ X1) \Leftrightarrow ((k1_relset_1 \\
& (u1_struct_0\ X0)\ X2 = k2_struct_0\ X0) \wedge ((k2_relset_1\ (u1_struct_0 \\
& X1)\ X2 = k2_struct_0\ X1) \wedge ((v2_funct_1\ X2) \wedge ((v5_pre_topc\ X2\ X0\ X1) \wedge \\
& (v5_pre_topc\ (k2_tops_2\ (u1_struct_0\ X0)\ (u1_struct_0\ X1)\ X2) \\
& X1\ X0)))))))))
\end{aligned} \tag{5}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(l1_pre_topc\ X1) \Rightarrow ((\\
& \exists X2.((v1_funct_1\ X2) \wedge ((v1_funct_2\ X2\ (u1_struct_0\ X0) \\
& (u1_struct_0\ X1)) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1 \\
& (u1_struct_0\ X0)\ (u1_struct_0\ X1)))))) \wedge (v3_tops_2\ X2\ X0\ X1)) \Rightarrow \\
& ((v2_struct_0\ X0) \Leftrightarrow (v2_struct_0\ X1)))
\end{aligned}$$