

t2_topreal1 (TM-
cQT193E9UsiaYT9LPsZX9TkM4CQhPRS1D)

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Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $v8_pre_topc : \iota \Rightarrow o$ 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 $r1_topreal1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k5_topmetr : \iota$ be given. Let $k1_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v2_pre_topc X0) \wedge ((v8_pre_topc X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\
& X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\
& X0))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. \\
& ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (u1_struct_0 k5_topmetr) (u1_struct_0 \\
& (k1_pre_topc X0 X1))) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 k5_topmetr) (u1_struct_0 (k1_pre_topc X0 X1)))))) \Rightarrow \\
& (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 X5 (u1_struct_0 k5_topmetr) \\
& (u1_struct_0 (k1_pre_topc X0 X2))) \wedge (m1_subset_1 X5 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 k5_topmetr) (u1_struct_0 (k1_pre_topc \\
& X0 X2)))))) \Rightarrow (\neg(k9_subset_1 (u1_struct_0 X0) X1 X2 = k1_tarski \\
& X3) \wedge ((v3_tops_2 X4 k5_topmetr (k1_pre_topc X0 X1)) \wedge ((k1_funct_1 \\
& X4 np_1 = X3) \wedge ((v3_tops_2 X5 k5_topmetr (k1_pre_topc X0 X2)) \wedge (\\
& (k1_funct_1 X5 k6_numbers = X3) \wedge (\forall X6.((v1_funct_1 X6) \wedge \\
& ((v1_funct_2 X6 (u1_struct_0 k5_topmetr) (u1_struct_0 (k1_pre_topc \\
& X0 (k4_subset_1 (u1_struct_0 X0) X1 X2)))) \wedge (m1_subset_1 X6 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 k5_topmetr) (u1_struct_0 (k1_pre_topc \\
& X0 (k4_subset_1 (u1_struct_0 X0) X1 X2)))))) \Rightarrow (\neg(v3_tops_2 X6 \\
& k5_topmetr (k1_pre_topc X0 (k4_subset_1 (u1_struct_0 X0) X1 X2))) \wedge \\
& ((k1_funct_1 X6 k6_numbers = k1_funct_1 X4 k6_numbers) \wedge (k1_funct_1 \\
& X6 np_1 = k1_funct_1 X5 np_1)))))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 X0))\Rightarrow(k9_subset_1 X0 X1 X2 = k3_xboole_0 X1 X2) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 X0))\wedge(m1_subset_1 X2 (k1_zfmisc_1 X0)))\Rightarrow(m1_subset_1 (k4_subset_1 X0 X1 X2) (k1_zfmisc_1 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} &\forall X0.((v2_pre_topc X0)\wedge(l1_pre_topc X0))\Rightarrow(\forall X1. \\ &(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 \\ &(u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (\\ &u1_struct_0 X0)))\Rightarrow((r1_topreal1 X0 X1 X2 X3)\Leftrightarrow(\exists X4.((v1_funct_1 \\ &X4)\wedge((v1_funct_2 X4 (u1_struct_0 k5_topmetr) (u1_struct_0 (k1_pre_topc \\ &X0 X3)))\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ &k5_topmetr) (u1_struct_0 (k1_pre_topc X0 X3))))))))\wedge((v3_tops_2 \\ &X4 k5_topmetr (k1_pre_topc X0 X3))\wedge((k1_funct_1 X4 k6_numbers = \\ &X1)\wedge(k1_funct_1 X4 np_1 = X2))))))))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} &\forall X0.((v2_pre_topc X0)\wedge((v8_pre_topc X0)\wedge(l1_pre_topc \\ &X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ &X0)))\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ &X0)))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(\forall X4. \\ &(m1_subset_1 X4 (u1_struct_0 X0))\Rightarrow(\forall X5.(m1_subset_1 X5 \\ &(u1_struct_0 X0))\Rightarrow(((r1_topreal1 X0 X3 X4 X1)\wedge((r1_topreal1 X0 \\ &X4 X5 X2)\wedge(k9_subset_1 (u1_struct_0 X0) X1 X2 = k1_tarski X4)))\Rightarrow \\ &(r1_topreal1 X0 X3 X5 (k4_subset_1 (u1_struct_0 X0) X1 X2)))))))))) \end{aligned}$$