

t15_pencil_2 (TMFwPz- ZfDR3M7qNaDFxcrvCa9YwBSiBbCfm)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. 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 $v1_pencil_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_zfmisc_1 : \iota \Rightarrow o$ be given. Let $k8_reset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k2_reset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $k7_reset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_t_0topsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(l1_struct_0 X1) \Rightarrow (\forall X2. \\
& ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\
& X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 X1)))))) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 \\
& (u1_struct_0 X1))) \Rightarrow (((k2_reset_1 (u1_struct_0 X1) X2 = k2_struct_0 \\
& X1) \wedge (v2_funct_1 X2)) \Rightarrow (k8_reset_1 (u1_struct_0 X0) (u1_struct_0 \\
& X1) X2 X3 = k7_reset_1 (u1_struct_0 X1) (u1_struct_0 X0) (k2_tops_2 \\
& (u1_struct_0 X0) (u1_struct_0 X1) X2) X3))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\
& ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 \\
& X0)) \wedge ((v1_pencil_2 X1 X0 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow (\forall X2.(m1_subset_1 \\
& X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\neg(\neg v1_zfmisc_1 X2) \wedge (v1_zfmisc_1 \\
& (k7_reset_1 (u1_struct_0 X0) (u1_struct_0 X0) X1 X2))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 \\ & X0)) \wedge ((v1_pencil_2 X1 X0 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow ((v1_funct_1 (k2_tops_2 \\ & (u1_struct_0 X0) (u1_struct_0 X0) X1)) \wedge ((v1_funct_2 (k2_tops_2 \\ & (u1_struct_0 X0) (u1_struct_0 X0) X1) (u1_struct_0 X0) (u1_struct_0 \\ & X0)) \wedge ((v1_pencil_2 (k2_tops_2 (u1_struct_0 X0) (u1_struct_0 \\ & X0) X1) X0 X0) \wedge (m1_subset_1 (k2_tops_2 (u1_struct_0 X0) (u1_struct_0 \\ & X0) X1) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 \\ & X0)))))))))) \end{aligned} \quad (3)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow \\ & ((v1_funct_1 (k2_tops_2 X0 X1 X2)) \wedge ((v1_funct_2 (k2_tops_2 X0 \\ & X1 X2) X1 X0) \wedge (m1_subset_1 (k2_tops_2 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(l1_pre_topc X1) \Rightarrow (\forall X2. \\ & ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\ & X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 X1)))))) \Rightarrow ((v1_pencil_2 X2 X0 X1) \Leftrightarrow ((v3_funct_2 \\ & X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge ((v1_t_0topsp X2 X0 X1) \wedge \\ & ((v3_funct_2 (k2_tops_2 (u1_struct_0 X0) (u1_struct_0 X1) X2) \\ & (u1_struct_0 X1) (u1_struct_0 X0)) \wedge (v1_t_0topsp (k2_tops_2 (\\ & u1_struct_0 X0) (u1_struct_0 X1) X2) X1 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (k2_struct_0 X0 = u1_struct_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v5_relat_1 X1 X0)) \Rightarrow (\\ & (v2_funct_2 X1 X0) \Leftrightarrow (k2_relset_1 X0 X1 = X0)) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))) \Rightarrow (((v1_funct_1 X2) \wedge (v3_funct_2 X2 X0 X1)) \Rightarrow \\ & ((v1_funct_1 X2) \wedge ((v2_funct_1 X2) \wedge (v2_funct_2 X2 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (11)$$

Theorem 1

$$\begin{aligned} &\forall X0.((\neg v2_struct_0 X0)\wedge(l1_pre_topc X0))\Rightarrow(\forall X1. \\ &((v1_funct_1 X1)\wedge((v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 \\ X0))\wedge((v1_pencil_2 X1 X0 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ &(u1_struct_0 X0) (u1_struct_0 X0)))))))\Rightarrow(\forall X2.(m1_subset_1 \\ X2 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(\neg(\neg v1_zfmisc_1 X2)\wedge(v1_zfmisc_1 \\ &(k8_relset_1 (u1_struct_0 X0) (u1_struct_0 X0) X1 X2)))))) \end{aligned}$$