

t104_tdlat_2 (TM-
cAEE3Rw3MbnNEcGAtcX9wT544Ng9ETnXK)

October 27, 2020

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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k12_tdlat_1 : \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k9_tdlat_1 : \iota \Rightarrow \iota$ be given. Let $k1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tops_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v17_lattices : \iota \Rightarrow o$ be given. Let $k11_tdlat_1 : \iota \Rightarrow \iota$ be given. Let $k10_tdlat_1 : \iota \Rightarrow \iota$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_funct_1 X1) \wedge (v1_funct_2 \\ & X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 \\ & (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X3. \forall X4. \forall X5. \\ & (g3_lattices X0 X1 X2 = g3_lattices X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge \\ & (X2 = X5)))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. (l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow ((\neg v2_struct_0 \\ & (k12_tdlat_1 X0)) \wedge ((v10_lattices (k12_tdlat_1 X0)) \wedge ((v17_lattices \\ & (k12_tdlat_1 X0)) \wedge (l3_lattices (k12_tdlat_1 X0)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow((v1_funct_1 \\ (k11_tdlat_1\ X0))\wedge((v1_funct_2\ (k11_tdlat_1\ X0)\ (k2_zfmisc_1 \\ (k9_tdlat_1\ X0)\ (k9_tdlat_1\ X0))\ (k9_tdlat_1\ X0))\wedge(m1_subset_1 \\ (k11_tdlat_1\ X0)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ (k9_tdlat_1 \\ X0)\ (k9_tdlat_1\ X0))\ (k9_tdlat_1\ X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow((v1_funct_1 \\ (k10_tdlat_1\ X0))\wedge((v1_funct_2\ (k10_tdlat_1\ X0)\ (k2_zfmisc_1 \\ (k9_tdlat_1\ X0)\ (k9_tdlat_1\ X0))\ (k9_tdlat_1\ X0))\wedge(m1_subset_1 \\ (k10_tdlat_1\ X0)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ (k9_tdlat_1 \\ X0)\ (k9_tdlat_1\ X0))\ (k9_tdlat_1\ X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v1_funct_1\ X1)\wedge((v1_funct_2 \\ X1\ (k2_zfmisc_1\ X0\ X0)\ X0)\wedge(m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ (k2_zfmisc_1\ X0\ X0)\ X0)))))\wedge((v1_funct_1\ X2)\wedge((v1_funct_2\ X2 \\ (k2_zfmisc_1\ X0\ X0)\ X0)\wedge(m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ (k2_zfmisc_1\ X0\ X0)\ X0))))))\Rightarrow((v3_lattices\ (g3_lattices\ X0\ X1 \\ X2))\wedge(l3_lattices\ (g3_lattices\ X0\ X1\ X2))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0)\wedge(l1_lattices\ X0))\Rightarrow(\forall X1. \\ (m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2 \\ (u1_struct_0\ X0))\Rightarrow(k2_lattices\ X0\ X1\ X2 = k5_binop_1\ (u1_struct_0 \\ X0)\ (u1_lattices\ X0)\ X1\ X2))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0)\wedge(l2_lattices\ X0))\Rightarrow(\forall X1. \\ (m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2 \\ (u1_struct_0\ X0))\Rightarrow(k1_lattices\ X0\ X1\ X2 = k5_binop_1\ (u1_struct_0 \\ X0)\ (u2_lattices\ X0)\ X1\ X2))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow(k12_tdlat_1 \\ X0 = g3_lattices\ (k9_tdlat_1\ X0)\ (k10_tdlat_1\ X0)\ (k11_tdlat_1 \\ X0)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow(\forall X1. \\
& ((v1_funct_1\ X1)\wedge((v1_funct_2\ X1\ (k2_zfmisc_1\ (k9_tdlat_1\ X0) \\
& (k9_tdlat_1\ X0))\ (k9_tdlat_1\ X0))\wedge(m1_subset_1\ X1\ (k1_zfmisc_1 \\
& (k2_zfmisc_1\ (k2_zfmisc_1\ (k9_tdlat_1\ X0)\ (k9_tdlat_1\ X0))\ (k9_tdlat_1 \\
& X0))))))\Rightarrow((X1 = k11_tdlat_1\ X0)\Leftrightarrow(\forall X2.(m2_subset_1\ X2\ (\\
& k1_zfmisc_1\ (u1_struct_0\ X0))\ (k9_tdlat_1\ X0))\Rightarrow(\forall X3.(\\
& m2_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X0))\ (k9_tdlat_1\ X0))\Rightarrow \\
& (k5_binop_1\ (k9_tdlat_1\ X0)\ X1\ X2\ X3 = k9_subset_1\ (u1_struct_0 \\
& X0)\ X2\ X3))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow(\forall X1. \\
& ((v1_funct_1\ X1)\wedge((v1_funct_2\ X1\ (k2_zfmisc_1\ (k9_tdlat_1\ X0) \\
& (k9_tdlat_1\ X0))\ (k9_tdlat_1\ X0))\wedge(m1_subset_1\ X1\ (k1_zfmisc_1 \\
& (k2_zfmisc_1\ (k2_zfmisc_1\ (k9_tdlat_1\ X0)\ (k9_tdlat_1\ X0))\ (k9_tdlat_1 \\
& X0))))))\Rightarrow((X1 = k10_tdlat_1\ X0)\Leftrightarrow(\forall X2.(m2_subset_1\ X2\ (\\
& k1_zfmisc_1\ (u1_struct_0\ X0))\ (k9_tdlat_1\ X0))\Rightarrow(\forall X3.(\\
& m2_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X0))\ (k9_tdlat_1\ X0))\Rightarrow \\
& (k5_binop_1\ (k9_tdlat_1\ X0)\ X1\ X2\ X3 = k1_tops_1\ X0\ (k2_pre_topc \\
& X0\ (k4_subset_1\ (u1_struct_0\ X0)\ X2\ X3))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\forall X0.(l3_lattices\ X0)\Rightarrow((v3_lattices\ X0)\Rightarrow(X0 = g3_lattices \\
(u1_struct_0\ X0)\ (u2_lattices\ X0)\ (u1_lattices\ X0))) \tag{12}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0\ X0)\wedge((v2_pre_topc\ X0)\wedge(l1_pre_topc \\
& X0)))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ (k12_tdlat_1 \\
& X0)))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (u1_struct_0\ (k12_tdlat_1 \\
& X0)))\Rightarrow(\forall X3.(m2_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0 \\
& X0))\ (k9_tdlat_1\ X0))\Rightarrow(\forall X4.(m2_subset_1\ X4\ (k1_zfmisc_1 \\
& (u1_struct_0\ X0))\ (k9_tdlat_1\ X0))\Rightarrow(((X1 = X3)\wedge(X2 = X4))\Rightarrow((k1_lattices \\
& (k12_tdlat_1\ X0)\ X1\ X2 = k1_tops_1\ X0\ (k2_pre_topc\ X0\ (k4_subset_1 \\
& (u1_struct_0\ X0)\ X3\ X4)))\wedge(k2_lattices\ (k12_tdlat_1\ X0)\ X1\ X2 = \\
& k9_subset_1\ (u1_struct_0\ X0)\ X3\ X4))))))
\end{aligned}$$