

## t95\_tdlat\_2

(TMKxFM5qyz9DBuoWhFw2oTWkNoKjAGFU7aA)

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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  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k8\_tdlat\_1 : \iota \Rightarrow \iota$  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  $k5\_tdlat\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tops\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $k7\_tdlat\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_tdlat\_1 : \iota \Rightarrow \iota$  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.

$$\begin{aligned} & \forall X0. ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow ((\neg v2\_struct\_0 \\ & (k8\_tdlat\_1 X0)) \wedge ((v10\_lattices (k8\_tdlat\_1 X0)) \wedge ((v17\_lattices \\ & (k8\_tdlat\_1 X0)) \wedge (l3\_lattices (k8\_tdlat\_1 X0)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow((v1\_funct\_1 \\ (k7\_tdlat\_1\ X0))\wedge((v1\_funct\_2\ (k7\_tdlat\_1\ X0)\ (k2\_zfmisc\_1\ ( \\ k5\_tdlat\_1\ X0)\ (k5\_tdlat\_1\ X0))\ (k5\_tdlat\_1\ X0))\wedge(m1\_subset\_1 \\ (k7\_tdlat\_1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_tdlat\_1 \\ X0)\ (k5\_tdlat\_1\ X0))\ (k5\_tdlat\_1\ X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow((v1\_funct\_1 \\ (k6\_tdlat\_1\ X0))\wedge((v1\_funct\_2\ (k6\_tdlat\_1\ X0)\ (k2\_zfmisc\_1\ ( \\ k5\_tdlat\_1\ X0)\ (k5\_tdlat\_1\ X0))\ (k5\_tdlat\_1\ X0))\wedge(m1\_subset\_1 \\ (k6\_tdlat\_1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_tdlat\_1 \\ X0)\ (k5\_tdlat\_1\ X0))\ (k5\_tdlat\_1\ X0)))))) \end{aligned} \quad (5)$$

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.

$$\begin{aligned} \forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow(k8\_tdlat\_1 \\ X0 = g3\_lattices\ (k5\_tdlat\_1\ X0)\ (k6\_tdlat\_1\ X0)\ (k7\_tdlat\_1\ X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow(\forall X1. \\ ((v1\_funct\_1\ X1)\wedge((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ (k5\_tdlat\_1\ X0) \\ (k5\_tdlat\_1\ X0))\ (k5\_tdlat\_1\ X0))\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_tdlat\_1\ X0)\ (k5\_tdlat\_1\ X0))\ (k5\_tdlat\_1 \\ X0))))))\Rightarrow((X1 = k7\_tdlat\_1\ X0)\Leftrightarrow(\forall X2.(m2\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ (u1\_struct\_0\ X0))\ (k5\_tdlat\_1\ X0))\Rightarrow(\forall X3.(m2\_subset\_1 \\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))\ (k5\_tdlat\_1\ X0))\Rightarrow(k5\_binop\_1 \\ (k5\_tdlat\_1\ X0)\ X1\ X2\ X3 = k2\_pre\_topc\ X0\ (k1\_tops\_1\ X0\ (k9\_subset\_1 \\ (u1\_struct\_0\ X0)\ X2\ X3)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0)) \Rightarrow (\forall X1. \\
& ((v1\_funct\_1\ X1) \wedge ((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ (k5\_tdlat\_1\ X0) \\
& (k5\_tdlat\_1\ X0))\ (k5\_tdlat\_1\ X0)) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k5\_tdlat\_1\ X0)\ (k5\_tdlat\_1\ X0))\ (k5\_tdlat\_1 \\
& X0)))))) \Rightarrow ((X1 = k6\_tdlat\_1\ X0) \Leftrightarrow (\forall X2.(m2\_subset\_1\ X2\ (k1\_zfmisc\_1 \\
& (u1\_struct\_0\ X0))\ (k5\_tdlat\_1\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1 \\
& X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))\ (k5\_tdlat\_1\ X0)) \Rightarrow (k5\_binop\_1 \\
& (k5\_tdlat\_1\ X0)\ X1\ X2\ X3 = k4\_subset\_1\ (u1\_struct\_0\ X0)\ X2\ X3))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_lattices\ X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2 \\
& (u1\_struct\_0\ X0)) \Rightarrow (k2\_lattices\ X0\ X1\ X2 = k5\_binop\_1\ (u1\_struct\_0 \\
& X0)\ (u1\_lattices\ X0)\ X1\ X2)))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0\ X0) \wedge (l2\_lattices\ X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2 \\
& (u1\_struct\_0\ X0)) \Rightarrow (k1\_lattices\ X0\ X1\ X2 = k5\_binop\_1\ (u1\_struct\_0 \\
& X0)\ (u2\_lattices\ X0)\ X1\ X2)))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l3\_lattices\ X0) \Rightarrow ((v3\_lattices\ X0) \Rightarrow (X0 = g3\_lattices \\
& (u1\_struct\_0\ X0)\ (u2\_lattices\ X0)\ (u1\_lattices\ X0)))
\end{aligned} \tag{12}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc \\
& X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ (k8\_tdlat\_1\ X0))) \Rightarrow \\
& (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ (k8\_tdlat\_1\ X0))) \Rightarrow ( \\
& \forall X3.(m2\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))\ (k5\_tdlat\_1 \\
& X0)) \Rightarrow (\forall X4.(m2\_subset\_1\ X4\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)) \\
& (k5\_tdlat\_1\ X0)) \Rightarrow (((X1 = X3) \wedge (X2 = X4)) \Rightarrow ((k1\_lattices\ (k8\_tdlat\_1 \\
& X0)\ X1\ X2 = k4\_subset\_1\ (u1\_struct\_0\ X0)\ X3\ X4) \wedge (k2\_lattices\ (k8\_tdlat\_1 \\
& X0)\ X1\ X2 = k2\_pre\_topc\ X0\ (k1\_tops\_1\ X0)\ (k9\_subset\_1\ (u1\_struct\_0 \\
& X0)\ X3\ X4))))))))))
\end{aligned}$$