

# t13\_real\_lat (TML- veN9r4Tw8BXdYUyrCr7N1PE8HmhrNDLW)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k9\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_real\_lat : \iota \Rightarrow \iota$  be given. Let  $k5\_real\_lat : \iota \Rightarrow \iota$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m2\_funct\_2 X1 X0 k1\_numbers \\ (k9\_funct\_2 X0 k1\_numbers)) \Rightarrow (\forall X2.(m2\_funct\_2 X2 X0 k1\_numbers \\ (k9\_funct\_2 X0 k1\_numbers)) \Rightarrow (r2\_funct\_2 X0 k1\_numbers (k1\_funcsdom \\ X0 k1\_numbers (k4\_real\_lat X0) X1 X2) (k1\_funcsdom X0 k1\_numbers \\ (k4\_real\_lat X0) X2 X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m2\_funct\_2 X1 X0 k1\_numbers \\ (k9\_funct\_2 X0 k1\_numbers)) \Rightarrow (\forall X2.(m2\_funct\_2 X2 X0 k1\_numbers \\ (k9\_funct\_2 X0 k1\_numbers)) \Rightarrow (r2\_funct\_2 X0 k1\_numbers (k1\_funcsdom \\ X0 k1\_numbers (k4\_real\_lat X0) X1 (k1\_funcsdom X0 k1\_numbers (k5\_real\_lat \\ X0) X1 X2)) X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2) \wedge \\ ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ X0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\ X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 \\ X3) \Leftrightarrow (X2 = X3)) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X1)\wedge(m1\_funct\_2 X2 X0 X1))\Rightarrow(\forall X3.(m2\_funct\_2 X3 X0 X1 X2)\Leftrightarrow(m1\_subset\_1 X3 X2)) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0 X1)\wedge(((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (k2\_zfmisc\_1 (k9\_funct\_2 X0 X1) (k9\_funct\_2 X0 X1)) (k9\_funct\_2 X0 X1))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_funct\_2 X0 X1) (k9\_funct\_2 X0 X1)) (k9\_funct\_2 X0 X1)) (k9\_funct\_2 X0 X1))))))\wedge((m1\_subset\_1 X3 (k9\_funct\_2 X0 X1))\wedge(m1\_subset\_1 X4 (k9\_funct\_2 X0 X1))))))\Rightarrow(k1\_funcsdom X0 X1 X2 X3 X4 = k1\_binop\_1 X2 X3 X4) \end{aligned} \quad (5)$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X1)\wedge(m1\_funct\_2 X2 X0 X1))\Rightarrow(\forall X3.(m2\_funct\_2 X3 X0 X1 X2)\Rightarrow((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X0 X1)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow(m1\_funct\_2 (k9\_funct\_2 X0 X1) X0 X1) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(((v1\_funct\_1 (k5\_real\_lat X0))\wedge((v1\_funct\_2 (k5\_real\_lat X0) (k2\_zfmisc\_1 (k9\_funct\_2 X0 k1\_numbers) (k9\_funct\_2 X0 k1\_numbers)) (k9\_funct\_2 X0 k1\_numbers))\wedge(m1\_subset\_1 (k5\_real\_lat X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_funct\_2 X0 k1\_numbers) (k9\_funct\_2 X0 k1\_numbers)) (k9\_funct\_2 X0 k1\_numbers)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(((v1\_funct\_1 (k4\_real\_lat X0))\wedge((v1\_funct\_2 (k4\_real\_lat X0) (k2\_zfmisc\_1 (k9\_funct\_2 X0 k1\_numbers) (k9\_funct\_2 X0 k1\_numbers)) (k9\_funct\_2 X0 k1\_numbers))\wedge(m1\_subset\_1 (k4\_real\_lat X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_funct\_2 X0 k1\_numbers) (k9\_funct\_2 X0 k1\_numbers)) (k9\_funct\_2 X0 k1\_numbers)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1\_xboole\_0 \\
& X1) \wedge (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 (k9\_funct\_2 \\
& X0 X1) (k9\_funct\_2 X0 X1)) (k9\_funct\_2 X0 X1)) \wedge (m1\_subset\_1 X2 ( \\
& k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_funct\_2 X0 X1) (k9\_funct\_2 \\
& X0 X1) (k9\_funct\_2 X0 X1)))))) \wedge ((m1\_subset\_1 X3 (k9\_funct\_2 X0 \\
& X1)) \wedge (m1\_subset\_1 X4 (k9\_funct\_2 X0 X1)))))) \Rightarrow (m2\_funct\_2 (k1\_funcsdom \\
& X0 X1 X2 X3 X4) X0 X1 (k9\_funct\_2 X0 X1))
\end{aligned} \tag{11}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (m2\_funct\_2 X1 X0 k1\_numbers \\
& (k9\_funct\_2 X0 k1\_numbers)) \Rightarrow (\forall X2. (m2\_funct\_2 X2 X0 k1\_numbers \\
& (k9\_funct\_2 X0 k1\_numbers)) \Rightarrow (r2\_funct\_2 X0 k1\_numbers (k1\_funcsdom \\
& X0 k1\_numbers (k4\_real\_lat X0) (k1\_funcsdom X0 k1\_numbers (k5\_real\_lat \\
& X0) X1 X2) X1) X1)))
\end{aligned}$$