

t55_lattice2 (TMU-
Vsmkx86QG7fYWeeKDQ3qwQHE7GsnJLY)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_finsub_1 : \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v13_lattices : \iota \Rightarrow o$ be given. Let $l3_lattices : \iota \Rightarrow o$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_lattice2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k5_finsub_1 \\
& X0)) \Rightarrow (\forall X2. ((\neg v2_struct_0 X2) \wedge ((v10_lattices X2) \wedge ((v13_lattices \\
& X2) \wedge (l3_lattices X2)))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\
& X3 X0 (u1_struct_0 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 (u1_struct_0 X2)))))) \Rightarrow (\forall X4. (m1_subset_1 X4 (u1_struct_0 \\
& X2)) \Rightarrow ((\forall X5. (m1_subset_1 X5 X0) \Rightarrow ((X5 \in X1) \Rightarrow (r3_lattices \\
& X2 (k3_funct_2 X0 (u1_struct_0 X2) X3 X5) X4))) \Rightarrow (r3_lattices X2 \\
& (k2_lattice2 X0 X2 X1 X3) X4))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\
& X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (\neg v1_xboole_0 X2) \Rightarrow (\forall X3. (m1_subset_1 X3 (k5_finsub_1 X2)) \Rightarrow \\
& (\forall X4. ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 X2 (u1_struct_0 \\
& X0)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X2 (u1_struct_0 \\
& X0)))))) \Rightarrow ((\exists X5. (m1_subset_1 X5 X2) \wedge ((X5 \in X3) \wedge (r3_lattices \\
& X0 X1 (k3_funct_2 X2 (u1_struct_0 X0) X4 X5)))) \Rightarrow (r3_lattices X0 \\
& X1 (k2_lattice2 X2 X0 X3 X4))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0))\Rightarrow(m1_subset_1 (\\ & k3_funct_2 X0 X1 X2 X3) X1) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & (((\neg v2_struct_0 X1)\wedge((v10_lattices X1)\wedge(l3_lattices X1)))\wedge \\ & ((m1_subset_1 X2 (k5_finsub_1 X0))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 \\ & X3 X0 (u1_struct_0 X1))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (u1_struct_0 X1))))))))))\Rightarrow(m1_subset_1 (k2_lattice2 X0 X1 X2 \\ & X3) (u1_struct_0 X1)) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k5_finsub_1 \\ & X0))\Rightarrow(\forall X2.((\neg v2_struct_0 X2)\wedge((v10_lattices X2)\wedge((v13_lattices \\ & X2)\wedge(l3_lattices X2))))\Rightarrow(\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 \\ & X3 X0 (u1_struct_0 X2))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (u1_struct_0 X2))))))\Rightarrow(\forall X4.((v1_funct_1 X4)\wedge((v1_funct_2 \\ & X4 X0 (u1_struct_0 X2))\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (u1_struct_0 X2))))))\Rightarrow((\forall X5.(m1_subset_1 X5 X0)\Rightarrow((\\ & X5 \in X1)\Rightarrow(r3_lattices X2 (k3_funct_2 X0 (u1_struct_0 X2) X3 X5) (\\ & k3_funct_2 X0 (u1_struct_0 X2) X4 X5))))\Rightarrow(r3_lattices X2 (k2_lattice2 \\ & X0 X2 X1 X3) (k2_lattice2 X0 X2 X1 X4)))))) \end{aligned}$$