

l46_poset_1 (TM- cBX1XVv3eMEe8WnH75bU6UZXHMGTi9riW)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_orders_2 : \iota \Rightarrow o$ be given. Let $v3_orders_2 : \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $v5_orders_2 : \iota \Rightarrow o$ be given. Let $v1_poset_1 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v6_orders_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_poset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k8_poset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_xboole_0 : \iota$ be given. Let $k1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_orders_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $g1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_poset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_orders_2 : \iota \Rightarrow \iota$ be given. Let $k4_poset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_poset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow \\ & ((X1 = k1_xboole_0) \Rightarrow (X0 = k1_xboole_0)) \Rightarrow (X2 \in k1_funct_2 X0 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (3)$$

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.

$$\forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(k9_funct_2 X0 X1 = k1_funct_2 X0 X1) \quad (5)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.((l1_orders_2 X0)\wedge((\neg v2_struct_0 X1)\wedge \\ &((v3_orders_2 X1)\wedge(l1_orders_2 X1))))\Rightarrow(\exists X2.(m1_subset_1 \\ &X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1))))\wedge \\ &((v1_relat_1 X2)\wedge((v4_relat_1 X2 (u1_struct_0 X0))\wedge((v5_relat_1 \\ &X2 (u1_struct_0 X1))\wedge((v1_funct_1 X2)\wedge((v1_partfun1 X2 (u1_struct_0 \\ &X0))\wedge((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1))\wedge(v5_orders_3 \\ &X2 X0 X1)))))))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))\Rightarrow(\forall X2.\forall X3.(g1_orders_2 X0 X1 = g1_orders_2 X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \quad (7)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v1_orders_2 \\ &X0)\wedge((v3_orders_2 X0)\wedge((v4_orders_2 X0)\wedge((v5_orders_2 X0)\wedge \\ &((v1_poset_1 X0)\wedge(l1_orders_2 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge \\ &((v1_orders_2 X1)\wedge((v3_orders_2 X1)\wedge((v4_orders_2 X1)\wedge((v5_orders_2 \\ &X1)\wedge((v1_poset_1 X1)\wedge(l1_orders_2 X1))))))))\wedge((\neg v1_xboole_0 \\ &X2)\wedge((v6_orders_2 X2 (k6_poset_1 X0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ &(u1_struct_0 (k6_poset_1 X0 X1))))))))\Rightarrow((v1_funct_1 (k8_poset_1 \\ &X0 X1 X2))\wedge((v1_funct_2 (k8_poset_1 X0 X1 X2) (u1_struct_0 X0) (\\ &u1_struct_0 X1))\wedge(v2_poset_1 (k8_poset_1 X0 X1 X2) X0 X1))) \end{aligned} \quad (8)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (9)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow(m1_subset_1 (u1_orders_2 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(m1_funct_2 (k9_funct_2 X0 X1) X0 X1) \quad (11)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v1_orders_2 \\
& X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge \\
& ((v1_poset_1 X0) \wedge (l1_orders_2 X0)))))) \wedge ((\neg v2_struct_0 X1) \wedge \\
& ((v1_orders_2 X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 \\
& X1) \wedge ((v1_poset_1 X1) \wedge (l1_orders_2 X1)))))) \wedge ((\neg v1_xboole_0 \\
& X2) \wedge ((v6_orders_2 X2 (k6_poset_1 X0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (u1_struct_0 (k6_poset_1 X0 X1)))))) \Rightarrow ((v1_funct_1 (k8_poset_1 \\
& X0 X1 X2)) \wedge ((v1_funct_2 (k8_poset_1 X0 X1 X2) (u1_struct_0 X0) (\\
& u1_struct_0 X1)) \wedge (m1_subset_1 (k8_poset_1 X0 X1 X2) (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v1_orders_2 X0) \wedge \\
& ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_poset_1 \\
& X0) \wedge (l1_orders_2 X0)))))) \wedge ((\neg v2_struct_0 X1) \wedge ((v1_orders_2 \\
& X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 X1) \wedge \\
& ((v1_poset_1 X1) \wedge (l1_orders_2 X1)))))) \Rightarrow ((\neg v2_struct_0 (k6_poset_1 \\
& X0 X1)) \wedge ((v1_orders_2 (k6_poset_1 X0 X1)) \wedge ((v3_orders_2 (k6_poset_1 \\
& X0 X1)) \wedge ((v4_orders_2 (k6_poset_1 X0 X1)) \wedge ((v5_orders_2 (k6_poset_1 \\
& X0 X1)) \wedge (l1_orders_2 (k6_poset_1 X0 X1))))))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v1_orders_2 X0) \wedge \\
& ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_poset_1 \\
& X0) \wedge (l1_orders_2 X0)))))) \wedge ((\neg v2_struct_0 X1) \wedge ((v1_orders_2 \\
& X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 X1) \wedge \\
& ((v1_poset_1 X1) \wedge (l1_orders_2 X1)))))) \Rightarrow (\neg v1_xboole_0 (k4_poset_1 \\
& X0 X1))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v1_orders_2 X0) \wedge ((v3_orders_2 \\
& X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_poset_1 X0) \wedge (\\
& l1_orders_2 X0)))))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v1_orders_2 \\
& X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 X1) \wedge \\
& ((v1_poset_1 X1) \wedge (l1_orders_2 X1)))))) \Rightarrow (k6_poset_1 X0 X1 = g1_orders_2 \\
& (k4_poset_1 X0 X1) (k5_poset_1 X0 X1))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_orders_2 X0) \wedge ((v3_orders_2 \\
& X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_poset_1 X0) \wedge (\\
& l1_orders_2 X0)))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v1_orders_2 \\
& X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 X1) \wedge \\
& ((v1_poset_1 X1) \wedge (l1_orders_2 X1)))))) \Rightarrow (k4_poset_1 X0 X1 = ReplSep \\
& (toset (\lambda X2 : \iota.m2_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\
& X1) (k9_funct_2 (u1_struct_0 X0) (u1_struct_0 X1))) (\lambda X2 : \\
& \iota.\exists X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 \\
& X0) (u1_struct_0 X1)) \wedge ((v2_poset_1 X3 X0 X1) \wedge (m1_subset_1 X3 (\\
& k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \wedge \\
& (r2_funct_2 (u1_struct_0 X0) (u1_struct_0 X1) X3 X2)) (\lambda X2 : \\
& \iota.X2)))
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge (v1_xboole_0 X1)) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow \\
& (\neg v1_partfun1 X2 X0))
\end{aligned} \tag{17}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_orders_2 X0) \Rightarrow ((v1_orders_2 X0) \Rightarrow (X0 = g1_orders_2 \\
& (u1_struct_0 X0) (u1_orders_2 X0)))
\end{aligned} \tag{18}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_orders_2 X0) \wedge ((v3_orders_2 \\
& X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_poset_1 X0) \wedge (\\
& l1_orders_2 X0)))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v1_orders_2 \\
& X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 X1) \wedge \\
& ((v1_poset_1 X1) \wedge (l1_orders_2 X1)))))) \Rightarrow (\forall X2.((\neg v1_xboole_0 \\
& X2) \wedge ((v6_orders_2 X2 (k6_poset_1 X0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (u1_struct_0 (k6_poset_1 X0 X1)))))) \Rightarrow (m1_subset_1 (k8_poset_1 \\
& X0 X1 X2) (u1_struct_0 (k6_poset_1 X0 X1))))))
\end{aligned}$$