

# l36\_poset\_1

(TMQByqgRjEYvQ23CHTcKp31rCPfkjisRUcw)

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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  $r1\_relat.2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_poset.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_poset.1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $u1\_struct.0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc.1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_yellow.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_struct.0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole.0 : \iota \Rightarrow o$  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  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_poset.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat.1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct.0 X0) \wedge ((v1\_orders.2 X0) \wedge ((v3\_orders.2 \\
& X0) \wedge ((v4\_orders.2 X0) \wedge ((v5\_orders.2 X0) \wedge ((v1\_poset.1 X0) \wedge ( \\
& l1\_orders.2 X0)))))) \Rightarrow (\forall X1.((\neg v2\_struct.0 X1) \wedge ((v1\_orders.2 \\
& X1) \wedge ((v3\_orders.2 X1) \wedge ((v4\_orders.2 X1) \wedge ((v5\_orders.2 X1) \wedge \\
& ((v1\_poset.1 X1) \wedge (l1\_orders.2 X1)))))) \Rightarrow (\forall X2.((v1\_funct.1 \\
& X2) \wedge ((v1\_funct.2 X2 (u1\_struct.0 X0) (u1\_struct.0 X1)) \wedge (m1\_subset.1 \\
& X2 (k1\_zfmisc.1 (k2\_zfmisc.1 (u1\_struct.0 X0) (u1\_struct.0 X1)))))) \Rightarrow \\
& (r1\_yellow.2 (u1\_struct.0 X0) X1 X2 X2)))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct.0 X0) \wedge (l1\_struct.0 X0)) \Rightarrow (\neg v1\_xboole.0 (u1\_struct.0 X0)) \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole.0 X1) \wedge (m1\_funct.2 \\
& X2 X0 X1)) \Rightarrow (\forall X3. (m2\_funct.2 X3 X0 X1 X2) \Rightarrow ((v1\_funct.1 X3) \wedge \\
& ((v1\_funct.2 X3 X0 X1) \wedge (m1\_subset.1 X3 (k1\_zfmisc.1 (k2\_zfmisc.1 \\
& X0 X1))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (l1\_struct\_0 X0) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow (m1\_funct\_2 (k9\_funct\_2 X0 X1) X0 X1) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge ((v1\_orders\_2 X0) \wedge \\ & ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_poset\_1 \\ & X0) \wedge (l1\_orders\_2 X0)))))) \wedge ((\neg v2\_struct\_0 X1) \wedge ((v1\_orders\_2 \\ & X1) \wedge ((v3\_orders\_2 X1) \wedge ((v4\_orders\_2 X1) \wedge ((v5\_orders\_2 X1) \wedge \\ & ((v1\_poset\_1 X1) \wedge (l1\_orders\_2 X1))))))))) \Rightarrow (m1\_subset\_1 (k5\_poset\_1 \\ & X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_poset\_1 X0 X1) (k4\_poset\_1 \\ & X0 X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(((\neg v2\_struct\_0 X0) \wedge ((v1\_orders\_2 X0) \wedge ((v3\_orders\_2 \\ & X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_poset\_1 X0) \wedge \\ & (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.(((\neg v2\_struct\_0 X1) \wedge ((v1\_orders\_2 \\ & X1) \wedge ((v3\_orders\_2 X1) \wedge ((v4\_orders\_2 X1) \wedge ((v5\_orders\_2 X1) \wedge \\ & ((v1\_poset\_1 X1) \wedge (l1\_orders\_2 X1))))))))) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_poset\_1 X0 X1) (k4\_poset\_1 X0 \\ & X1)))) \Rightarrow ((X2 = k5\_poset\_1 X0 X1) \Leftrightarrow (\forall X3.\forall X4.(k4\_tarski \\ & X3 X4 \in X2) \Leftrightarrow ((X3 \in k4\_poset\_1 X0 X1) \wedge ((X4 \in k4\_poset\_1 X0 X1) \wedge (\exists X5. \\ & ((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)))))) \wedge (\exists X6.((v1\_funct\_1 X6) \wedge ((v1\_funct\_2 \\ & X6 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X6 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \wedge ((X3 = X5) \wedge \\ & ((X4 = X6) \wedge (r1\_yellow\_2 (u1\_struct\_0 X0) X1 X5 X6)))))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_orders\_2 X0) \wedge ((v3\_orders\_2 \\
& X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_poset\_1 X0) \wedge ( \\
& l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v1\_orders\_2 \\
& X1) \wedge ((v3\_orders\_2 X1) \wedge ((v4\_orders\_2 X1) \wedge ((v5\_orders\_2 X1) \wedge \\
& ((v1\_poset\_1 X1) \wedge (l1\_orders\_2 X1)))))) \Rightarrow (k4\_poset\_1 X0 X1 = ReplSep \\
& (toset (\lambda X2 : \iota.m2\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\
& X1) (k9\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1))) (\lambda X2 : \\
& \iota.\exists X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1)) \wedge ((v2\_poset\_1 X3 X0 X1) \wedge (m1\_subset\_1 X3 ( \\
& k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \wedge \\
& (r2\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X3 X2)) (\lambda X2 : \\
& \iota.X2)))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r1\_relat\_2 X0 X1) \Leftrightarrow (\forall X2. \\
& (X2 \in X1) \Rightarrow (k4\_tarski X2 X2 \in X0)))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2)
\end{aligned} \tag{10}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_orders\_2 X0) \wedge ((v3\_orders\_2 \\
& X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_poset\_1 X0) \wedge ( \\
& l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v1\_orders\_2 \\
& X1) \wedge ((v3\_orders\_2 X1) \wedge ((v4\_orders\_2 X1) \wedge ((v5\_orders\_2 X1) \wedge \\
& ((v1\_poset\_1 X1) \wedge (l1\_orders\_2 X1)))))) \Rightarrow (r1\_relat\_2 (k5\_poset\_1 \\
& X0 X1) (k4\_poset\_1 X0 X1)))
\end{aligned}$$