

t18\_waybel14 (TM-  
ceR3NVRvDdLjUWUtJHHc4LNuKRVc57SfX)

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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  $k2\_yellow\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_pre\_topc : \iota \Rightarrow \iota$  be given. Let  $k13\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k11\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_orders\_2 : \iota \Rightarrow \iota$  be given. Let  $k1\_yellow\_1 : \iota \Rightarrow \iota$  be given. Let  $k9\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v1\_lattice3 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v2\_lattice3 : \iota \Rightarrow o$  be given. Let  $v7\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v3\_lattice3 : \iota \Rightarrow o$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\ (k2\_yellow\_1 X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 \\ (k2\_yellow\_1 X0))) \Rightarrow ((k3\_xboole\_0 X1 X2 \in X0) \Rightarrow (k11\_lattice3 (k2\_yellow\_1 \\ X0) X1 X2 = k3\_xboole\_0 X1 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\ (k2\_yellow\_1 X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 \\ (k2\_yellow\_1 X0))) \Rightarrow ((k2\_xboole\_0 X1 X2 \in X0) \Rightarrow (k10\_lattice3 (k2\_yellow\_1 \\ X0) X1 X2 = k2\_xboole\_0 X1 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1)\Rightarrow((v1\_xboole\_0 X1)\vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\forall X0.(u1\_struct\_0 (k2\_yellow\_1 X0) = X0)\wedge(u1\_orders\_2 (k2\_yellow\_1 X0) = k1\_yellow\_1 X0) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))\Rightarrow(k9\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)))\Rightarrow(k4\_subset\_1 X0 X1 X2 = k2\_xboole\_0 X1 X2) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v5\_orders\_2 X0)\wedge((v1\_lattice3 X0)\wedge(l1\_orders\_2 X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(k13\_lattice3 X0 X1 X2 = k10\_lattice3 X0 X1 X2) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v5\_orders\_2 X0)\wedge((v2\_lattice3 X0)\wedge(l1\_orders\_2 X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(k12\_lattice3 X0 X1 X2 = k11\_lattice3 X0 X1 X2) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0)))\Rightarrow((\neg v7\_struct\_0 (k2\_yellow\_1 (u1\_pre\_topc X0)))\wedge((v1\_orders\_2 (k2\_yellow\_1 (u1\_pre\_topc X0)))\wedge(v3\_lattice3 (k2\_yellow\_1 (u1\_pre\_topc X0)))))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\wedge(((v3\_pre\_topc X1 X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))\wedge((v3\_pre\_topc X2 X0)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))))\Rightarrow(v3\_pre\_topc (k2\_xboole\_0 X1 X2) X0) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\wedge(((v3\_pre\_topc\ X1\ X0)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))\wedge((v3\_pre\_topc\ X2\ X0)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))))\Rightarrow(v3\_pre\_topc\ (k3\_xboole\_0\ X1\ X2)\ X0) \quad (13)$$

Assume the following.

$$\forall X0.(v1\_orders\_2\ (k2\_yellow\_1\ X0))\wedge((v3\_orders\_2\ (k2\_yellow\_1\ X0))\wedge((v4\_orders\_2\ (k2\_yellow\_1\ X0))\wedge(v5\_orders\_2\ (k2\_yellow\_1\ X0)))) \quad (14)$$

Assume the following.

$$\forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_pre\_topc\ X0)) \quad (15)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(m1\_subset\_1\ (u1\_pre\_topc\ X0)\ (k1\_zfmisc\_1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \quad (16)$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow(l1\_struct\_0\ X0) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ X0))\Rightarrow(m1\_subset\_1\ (k9\_subset\_1\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ X0)) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ X0)))\Rightarrow(m1\_subset\_1\ (k4\_subset\_1\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ X0)) \quad (19)$$

Assume the following.

$$\forall X0.(v1\_orders\_2\ (k2\_yellow\_1\ X0))\wedge(l1\_orders\_2\ (k2\_yellow\_1\ X0)) \quad (20)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow((v3\_pre\_topc\ X1\ X0)\Leftrightarrow(X1\in u1\_pre\_topc\ X0))) \quad (21)$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow(((\neg v2\_struct\_0\ X0)\wedge(v3\_lattice3\ X0))\Rightarrow((\neg v2\_struct\_0\ X0)\wedge((v1\_lattice3\ X0)\wedge(v2\_lattice3\ X0)))) \quad (22)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow ((\neg v7\_struct\_0 X0) \Rightarrow (\neg v2\_struct\_0 X0)) \quad (23)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 (k2\_yellow\_1 \\ & (u1\_pre\_topc X0)))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & (k2\_yellow\_1 (u1\_pre\_topc X0)))) \Rightarrow ((k13\_lattice3 (k2\_yellow\_1 \\ & (u1\_pre\_topc X0)) X1 X2 = k2\_xboole\_0 X1 X2) \wedge (k12\_lattice3 (k2\_yellow\_1 \\ & (u1\_pre\_topc X0)) X1 X2 = k3\_xboole\_0 X1 X2)))) \end{aligned}$$