

t15\_waybel13 (TM-  
PEPYx3Ez9meSPJpE1MZdWFgq2uGbRyAVc)

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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  $v1\_lattice3 : \iota \Rightarrow o$  be given. Let  $v1\_yellow\_0 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $k1\_waybel\_8 : \iota \Rightarrow \iota$  be given. Let  $v4\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k3\_yellow\_0 : \iota \Rightarrow \iota$  be given. Let  $v6\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $r1\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_orders\_2 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.((v4\_yellow\_0 X1 X0) \wedge \\ & (m1\_yellow\_0 X1 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4. \\ & (m1\_subset\_1 X4 (u1\_struct\_0 X1)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 \\ & (u1\_struct\_0 X1)) \Rightarrow (((X4 = X2) \wedge ((X5 = X3) \wedge ((r1\_orders\_2 X0 X2 X3) \wedge \\ & (X4 \in u1\_struct\_0 X1)))) \Rightarrow (r1\_orders\_2 X1 X4 X5)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\neg(X0 \in X1) \wedge ((m1\_subset\_1 X1 (k1\_zfmisc\_1 X2)) \wedge (v1\_xboole\_0 X2)) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_yellow\_0 X0) \wedge (l1\_orders\_2 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (r1\_orders\_2 X0 (k3\_yellow\_0 X0) X1)) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge ((v1\_yellow\_0 X0) \wedge (l1\_orders\_2 X0))))))) \Rightarrow ((v6\_yellow\_0 (k1\_waybel\_8 X0) X0) \wedge (k3\_yellow\_0 X0 \in u1\_struct\_0 (k1\_waybel\_8 X0))) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (8)$$

Assume the following.

$$\forall X0. \forall X1. r1\_tarski X0 X0 \quad (9)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow ((v1\_orders\_2 (k1\_waybel\_8 X0)) \wedge ((v4\_yellow\_0 (k1\_waybel\_8 X0) X0) \wedge (v6\_yellow\_0 (k1\_waybel\_8 X0) X0))) \quad (10)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_yellow\_0 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow ((\neg v2\_struct\_0 (k1\_waybel\_8 X0)) \wedge ((v1\_orders\_2 (k1\_waybel\_8 X0)) \wedge (v4\_yellow\_0 (k1\_waybel\_8 X0) X0))) \quad (11)$$

Assume the following.

$$\forall X0. (l1\_orders\_2 X0) \Rightarrow (\forall X1. (m1\_yellow\_0 X1 X0) \Rightarrow (l1\_orders\_2 X1)) \quad (12)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge (l1\_orders\_2 X0))) \Rightarrow ((v1\_orders\_2 (k1\_waybel\_8 X0)) \wedge ((v4\_yellow\_0 (k1\_waybel\_8 X0) X0) \wedge (m1\_yellow\_0 (k1\_waybel\_8 X0) X0))) \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.\forall X2.(m1\_subset\_1 \\ X2 (u1\_struct\_0 X0) \Rightarrow ((r1\_lattice3 X0 X1 X2) \Leftrightarrow (\forall X3.(m1\_subset\_1 \\ X3 (u1\_struct\_0 X0) \Rightarrow ((X3 \in X1) \Rightarrow (r1\_orders\_2 X0 X2 X3)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_orders\_2 X0) \Rightarrow ((v1\_yellow\_0 X0) \Leftrightarrow (\exists X1.( \\ m1\_subset\_1 X1 (u1\_struct\_0 X0) \wedge (r1\_lattice3 X0 (u1\_struct\_0 \\ X0) X1))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.(l1\_orders\_2 X1) \Rightarrow (( \\ m1\_yellow\_0 X1 X0) \Leftrightarrow ((r1\_tarski (u1\_struct\_0 X1) (u1\_struct\_0 \\ X0)) \wedge (r1\_tarski (u1\_orders\_2 X1) (u1\_orders\_2 X0)))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.((v5\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ (m1\_yellow\_0 X1 X0) \Rightarrow ((v4\_yellow\_0 X1 X0) \Rightarrow ((v5\_orders\_2 X1) \wedge ( \\ v4\_yellow\_0 X1 X0)))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.((v4\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ (m1\_yellow\_0 X1 X0) \Rightarrow ((v4\_yellow\_0 X1 X0) \Rightarrow ((v4\_orders\_2 X1) \wedge ( \\ v4\_yellow\_0 X1 X0)))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.((v3\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ (m1\_yellow\_0 X1 X0) \Rightarrow ((v4\_yellow\_0 X1 X0) \Rightarrow ((v3\_orders\_2 X1) \wedge ( \\ v4\_yellow\_0 X1 X0)))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow ((v1\_lattice3 X0) \Rightarrow (\neg v2\_struct\_0 X0)) \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0.((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 \\ X0) \wedge (l1\_orders\_2 X0)))) \Rightarrow (\forall X1.(m1\_yellow\_0 X1 X0) \Rightarrow ((( \\ \neg v2\_struct\_0 X1) \wedge ((v4\_yellow\_0 X1 X0) \wedge (v6\_yellow\_0 X1 X0)))) \Rightarrow \\ ((\neg v2\_struct\_0 X1) \wedge ((v1\_lattice3 X1) \wedge ((v4\_yellow\_0 X1 X0) \wedge ( \\ v6\_yellow\_0 X1 X0)))))) \end{aligned} \quad (21)$$

**Theorem 1**

$$\begin{aligned} \forall X0. & ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 \\ & X0) \wedge ((v1\_lattice3 X0) \wedge ((v1\_yellow\_0 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\ & ((v3\_orders\_2 (k1\_waybel\_8 X0)) \wedge ((v4\_orders\_2 (k1\_waybel\_8 \\ & X0)) \wedge ((v5\_orders\_2 (k1\_waybel\_8 X0)) \wedge ((v1\_lattice3 (k1\_waybel\_8 \\ & X0)) \wedge ((v1\_yellow\_0 (k1\_waybel\_8 X0)) \wedge (l1\_orders\_2 (k1\_waybel\_8 \\ & X0))))))) \end{aligned}$$