# t22_waybel15 (TMY5vnMAwuHxqFgyvnzVBELwLSecC7EUDXh)

October 27, 2020

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 $v2\_lattice3 : \iota \Rightarrow o$ be given. Let $v11\_waybel\_1 : \iota \Rightarrow o$ be given. Let $l1\_orders\_2 : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_waybel15 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7\_waybel\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2\_waybel\_1 : \iota \Rightarrow o$ be given. Let $k13\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_yellow\_0 : \iota \Rightarrow o$ be given. Let $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_yellow\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_yellow\_0 : \iota \Rightarrow o$ be given. Let $k11\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_yellow\_0 : \iota \Rightarrow \iota$ be given. Let $k10\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6\_waybel\_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3\_yellow\_0 : \iota \Rightarrow o$ be given. Let $v10\_waybel\_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((v3\_orders\_2\ X0) \wedge ((v4\_orders\_2\ X0) \wedge ((v5\_orders\_2\ X0) \wedge ((v1\_lattice3\ X0) \wedge ((v2\_lattice3\ X0) \wedge (l1\_orders\_2\ X0)))))) \Rightarrow ((v2\_waybel\_1\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (k13\_lattice3\ X0\ X1\ (k12\_lattice3\ X0\ X2\ X3) = k12\_lattice3\ X0\ (k13\_lattice3\ X0\ X1\ X2)\ (k13\_lattice3\ X0\ X1\ X3))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v5\_orders\_2\ X0) \wedge ((v2\_yellow\_0\ X0) \wedge (l1\_orders\_2\ X0)))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (r1\_orders\_2\ X0\ X1\ (k4\_yellow\_0\ X0))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v5\_orders\_2\ X0) \wedge ((v1\_yellow\_0\ X0) \wedge (l1\_orders\_2\ X0)))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (((v2\_lattice3\ X0) \Rightarrow (k11\_lattice3\ X0\ (k3\_yellow\_0\ X0)\ X1 = k3\_yellow\_0\ X0)) \wedge (((v1\_lattice3\ X0) \wedge ((v3\_orders\_2\ X0) \wedge (v4\_orders\_2\ X0))) \Rightarrow (k10\_lattice3\ X0\ (k3\_yellow\_0\ X0)\ X1 = X1)))) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v11\_waybel\_1\ X0)\wedge(l1\_orders\_2\ X0)))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow((k12\_lattice3\ X0\ X1\ (k7\_waybel\_1\ X0\ X1) = k3\_yellow\_0\ X0)\wedge(k13\_lattice3\ X0\ X1\ (k7\_waybel\_1\ X0\ X1) = k4\_yellow\_0\ X0))) \tag{4}$$

Assume the following.

$$\forall X0.((v3\_orders\_2\ X0)\wedge((v5\_orders\_2\ X0)\wedge((v1\_lattice3\ X0)\wedge(l1\_orders\_2\ X0))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((X1 = k13\_lattice3\ X0\ X1\ X2)\Leftrightarrow(r1\_orders\_2\ X0\ X2\ X1)))) \tag{5}$$

Assume the following.

$$\forall X0.((v3\_orders\_2\ X0)\wedge((v4\_orders\_2\ X0)\wedge((v5\_orders\_2\ X0)\wedge((v1\_lattice3\ X0)\wedge((v2\_lattice3\ X0)\wedge((v11\_waybel\_1\ X0)\wedge(l1\_orders\_2\ X0)))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow((v1\_waybel15\ X1\ X0)\Leftrightarrow((v6\_waybel\_6\ X1\ X0)\wedge(X1\neq k3\_yellow\_0\ X0)))) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v3\_orders\_2\ X0)\wedge((v4\_orders\_2\ X0)\wedge((v5\_orders\_2\ X0)\wedge((v1\_lattice3\ X0)\wedge(l1\_orders\_2\ X0))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow((v6\_waybel\_6\ X1\ X0)\Leftrightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\neg(r3\_orders\_2\ X0\ X1\ (k13\_lattice3\ X0\ X2\ X3))\wedge((\neg r3\_orders\_2\ X0\ X1\ X2)\wedge(\neg r3\_orders\_2\ X0\ X1\ X3))))))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v3\_orders\_2\ X0)\wedge(l1\_orders\_2\ X0)))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow((r3\_orders\_2\ X0\ X1\ X2)\Leftrightarrow(r1\_orders\_2\ X0\ X1\ X2)) \tag{8}$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge(l1\_orders\_2\ X0))\wedge(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)))\Rightarrow(m1\_subset\_1\ (k7\_waybel\_1\ X0\ X1)\ (u1\_struct\_0\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0) \Rightarrow (m1\_subset\_1\ (k4\_yellow\_0\ X0)\ (u1\_struct\_0\ X0)) \tag{11}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0) \Rightarrow (m1\_subset\_1\ (k3\_yellow\_0\ X0)\ (u1\_struct\_0\ X0)) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v5\_orders\_2\ X0) \wedge ((v1\_lattice3\ X0) \wedge (l1\_orders\_2\ X0))) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \Rightarrow (k13\_lattice3\ X0\ X1\ X2 = k13\_lattice3\ X0\ X2\ X1) \tag{13}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0) \Rightarrow (((\neg v2\_struct\_0\ X0) \wedge (v11\_waybel\_1\ X0)) \Rightarrow ((\neg v2\_struct\_0\ X0) \wedge ((v3\_orders\_2\ X0) \wedge ((v4\_orders\_2\ X0) \wedge ((v5\_orders\_2\ X0) \wedge ((v1\_lattice3\ X0) \wedge ((v2\_lattice3\ X0) \wedge ((v3\_yellow\_0\ X0) \wedge ((v2\_waybel\_1\ X0) \wedge (v10\_waybel\_1\ X0)))))))))) \tag{14}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0) \Rightarrow ((v3\_yellow\_0\ X0) \Rightarrow ((v1\_yellow\_0\ X0) \wedge (v2\_yellow\_0\ X0))) \tag{15}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0) \Rightarrow ((v1\_lattice3\ X0) \Rightarrow (\neg v2\_struct\_0\ X0)) \tag{16}$$

**Theorem 1**

$$\forall X0.((v3\_orders\_2\ X0) \wedge ((v4\_orders\_2\ X0) \wedge ((v5\_orders\_2\ X0) \wedge ((v1\_lattice3\ X0) \wedge ((v2\_lattice3\ X0) \wedge ((v11\_waybel\_1\ X0) \wedge (l1\_orders\_2\ X0)))))))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow ((v1\_waybel15\ X2\ X0) \Rightarrow ((r3\_orders\_2\ X0\ X2\ X1) \Leftrightarrow (\neg r3\_orders\_2\ X0\ X2\ (k7\_waybel\_1\ X0\ X1))))))$$