

## t35\_yellow\_5

(TMSkSnfvCG6qoo4ah4KxZ9jE4Fsss9G8eFT)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  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  $r3\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_yellow\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_yellow\_0 : \iota \Rightarrow o$  be given. Let  $v2\_lattice3 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $k11\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_yellow\_0 : \iota \Rightarrow \iota$  be given. Let  $k10\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_waybel\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_yellow\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_waybel\_1 : \iota \Rightarrow o$  be given. Let  $v9\_waybel\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 \\ & X0) \wedge (l1\_orders\_2 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((r1\_orders\_2 X0 X1 X2) \Rightarrow (r1\_orders\_2 \\ & X0 (k13\_lattice3 X0 X1 X3) (k13\_lattice3 X0 X2 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(((\neg v2\_struct\_0 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v2\_yellow\_0 \\ & X0) \wedge (l1\_orders\_2 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (((v2\_lattice3 X0) \wedge ((v4\_orders\_2 X0) \wedge (v3\_orders\_2 X0))) \Rightarrow \\ & (k11\_lattice3 X0 (k4\_yellow\_0 X0) X1 = X1)) \wedge ((v1\_lattice3 X0) \Rightarrow \\ & (k10\_lattice3 X0 (k4\_yellow\_0 X0) X1 = k4\_yellow\_0 X0)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(((\neg v2\_struct\_0 X0) \wedge ((v11\_waybel\_1 X0) \wedge (l1\_orders\_2 \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((k12\_lattice3 \\ & X0 X1 (k7\_waybel\_1 X0 X1) = k3\_yellow\_0 X0) \wedge (k13\_lattice3 X0 X1 ( \\ & k7\_waybel\_1 X0 X1) = k4\_yellow\_0 X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge (l1\_orders\_2 \\
& X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow ((X3 = k13\_lattice3 X0 X1 X2) \Leftrightarrow ((r1\_orders\_2 \\
& X0 X1 X3) \wedge ((r1\_orders\_2 X0 X2 X3) \wedge (\forall X4.(m1\_subset\_1 X4 ( \\
& u1\_struct\_0 X0)) \Rightarrow (((r1\_orders\_2 X0 X1 X4) \wedge (r1\_orders\_2 X0 X2 X4)) \Rightarrow \\
& (r1\_orders\_2 X0 X3 X4))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 \\
& X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\
& ((v2\_waybel\_1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 \\
& X3 (u1\_struct\_0 X0)) \Rightarrow (k13\_lattice3 X0 X1 (k12\_lattice3 X0 X2 X3) = \\
& k12\_lattice3 X0 (k13\_lattice3 X0 X1 X2) (k13\_lattice3 X0 X1 X3))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 \\
& X0) \wedge (l1\_orders\_2 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\
& m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow ((r3\_orders\_2 X0 X1 X2) \Leftrightarrow (r1\_orders\_2 \\
& X0 X1 X2))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((v5\_orders\_2 X0) \wedge ((v2\_lattice3 \\
& X0) \wedge (l1\_orders\_2 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\
& m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k12\_lattice3 X0 X1 X2 = k11\_lattice3 \\
& X0 X1 X2)
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \wedge \\
& (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k7\_waybel\_1 \\
& X0 X1) (u1\_struct\_0 X0))
\end{aligned} \tag{8}$$

Assume the following.

$$\forall X0. (l1\_orders\_2 X0) \Rightarrow (m1\_subset\_1 (k4\_yellow\_0 X0) (u1\_struct\_0 X0)) \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 \\
& X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\
& X0)))) \Rightarrow (m1\_subset\_1 (k1\_yellow\_5 X0 X1 X2) (u1\_struct\_0 X0))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v5\_orders\_2 X0)\wedge((v1\_lattice3 \\ & X0)\wedge(l1\_orders\_2 X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge( \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(m1\_subset\_1 (k13\_lattice3 \\ & X0 X1 X2) (u1\_struct\_0 X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_orders\_2 X0)\Rightarrow((v4\_orders\_2 X0)\Leftrightarrow(\forall X1.( \\ & m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 \\ & (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow \\ & (((r1\_orders\_2 X0 X1 X2)\wedge(r1\_orders\_2 X0 X2 X3))\Rightarrow(r1\_orders\_2 \\ & X0 X1 X3)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 \\ & (u1\_struct\_0 X0))\Rightarrow(k1\_yellow\_5 X0 X1 X2 = k11\_lattice3 X0 X1 (k7\_waybel\_1 \\ & X0 X2)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v5\_orders\_2 X0)\wedge((v1\_lattice3 \\ & X0)\wedge(l1\_orders\_2 X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge( \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(k13\_lattice3 X0 X1 X2 = k13\_lattice3 \\ & X0 X2 X1) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v5\_orders\_2 X0)\wedge((v2\_lattice3 \\ & X0)\wedge(l1\_orders\_2 X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge( \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(k12\_lattice3 X0 X1 X2 = k12\_lattice3 \\ & X0 X2 X1) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_orders\_2 X0)\Rightarrow(((\neg v2\_struct\_0 X0)\wedge(v9\_waybel\_1 \\ & X0))\Rightarrow((\neg v2\_struct\_0 X0)\wedge(v2\_yellow\_0 X0))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_orders\_2 X0)\Rightarrow(((\neg v2\_struct\_0 X0)\wedge(v9\_waybel\_1 \\ & X0))\Rightarrow((\neg v2\_struct\_0 X0)\wedge(v2\_waybel\_1 X0))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_orders\_2 X0)\Rightarrow(((\neg v2\_struct\_0 X0)\wedge(v9\_waybel\_1 \\ & X0))\Rightarrow((\neg v2\_struct\_0 X0)\wedge((v3\_orders\_2 X0)\wedge((v4\_orders\_2 X0)\wedge \\ & ((v5\_orders\_2 X0)\wedge((v1\_lattice3 X0)\wedge(v2\_lattice3 X0)))))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow ((v2\_lattice3 X0) \Rightarrow (\neg v2\_struct\_0 X0)) \quad (19)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v11\_waybel\_1 X0)) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v9\_waybel\_1 X0))) \quad (20)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v11\_waybel\_1 X0) \wedge (l1\_orders\_2 \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow ((r3\_orders\_2 X0 (k1\_yellow\_5 X0 X1 X2) X3) \Rightarrow \\ & (r3\_orders\_2 X0 X1 (k13\_lattice3 X0 X2 X3)))))) \end{aligned}$$