

# t59\_waybel23 (TMb- nCLARLBm9XPABbtGw3qdFoyzHddH9VNT)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  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  $v5\_orders\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_waybel23 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_yellow\_1 : \iota \Rightarrow \iota$  be given. Let  $k7\_waybel\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v12\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0))) \Rightarrow ((r1\_tarski X1 X2) \Rightarrow (r1\_tarski (k3\_waybel\_0 \\ X0 X1) (k3\_waybel\_0 X0 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v3\_orders\_2 X1) \wedge \\ ((v4\_orders\_2 X1) \wedge (l1\_orders\_2 X1)))) \Rightarrow ((m1\_subset\_1 X0 (u1\_struct\_0 \\ (k2\_yellow\_1 (k7\_waybel\_0 X1)))) \Leftrightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_waybel\_0 \\ X0 X1) \wedge ((v12\_waybel\_0 X0 X1) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X1))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ (k2\_yellow\_1 X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ (k2\_yellow\_1 X0))) \Rightarrow ((r3\_orders\_2 (k2\_yellow\_1 X0) X1 X2) \Leftrightarrow (r1\_tarski \\ X1 X2)))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(v3\_orders\_2 X0)\wedge(l1\_orders\_2 X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (u1\_struct\_0 X0)))\Rightarrow((r3\_orders\_2 X0 X1 X2)\Leftrightarrow(r1\_orders\_2 X0 X1 X2)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge(((v1\_funct\_1 X2)\wedge(v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))\wedge(m1\_subset\_1 X3 X0)))\Rightarrow(k3\_funct\_2 X0 X1 X2 X3 = k1\_funct\_1 X2 X3) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(v3\_orders\_2 X0)\wedge(v4\_orders\_2 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\exists X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\wedge((\neg v1\_xboole\_0 X1)\wedge((v1\_waybel\_0 X1 X0)\wedge(v12\_waybel\_0 X1 X0)))) \quad (6)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow((\neg v2\_struct\_0 (k2\_yellow\_1 X0))\wedge(v1\_orders\_2 (k2\_yellow\_1 X0))) \quad (7)$$

Assume the following.

$$\forall X0.(v1\_orders\_2 (k2\_yellow\_1 X0)\wedge(v3\_orders\_2 (k2\_yellow\_1 X0))\wedge(v4\_orders\_2 (k2\_yellow\_1 X0))\wedge(v5\_orders\_2 (k2\_yellow\_1 X0))) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(v3\_orders\_2 X0)\wedge(v4\_orders\_2 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\neg v1\_xboole\_0 (k7\_waybel\_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0)\Rightarrow(\forall X1.(m1\_yellow\_0 X1 X0)\Rightarrow(l1\_orders\_2 X1)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(v3\_orders\_2 X0)\wedge(v4\_orders\_2 X0)\wedge(l1\_orders\_2 X0)))\wedge((\neg v2\_struct\_0 X1)\wedge(v4\_yellow\_0 X1 X0)\wedge(m1\_yellow\_0 X1 X0))\Rightarrow((v1\_funct\_1 (k4\_waybel23 X0 X1))\wedge((v1\_funct\_2 (k4\_waybel23 X0 X1) (u1\_struct\_0 (k2\_yellow\_1 (k7\_waybel\_0 X1))) (u1\_struct\_0 (k2\_yellow\_1 (k7\_waybel\_0 X0))))\wedge(m1\_subset\_1 (k4\_waybel23 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 (k2\_yellow\_1 (k7\_waybel\_0 X1))) (u1\_struct\_0 (k2\_yellow\_1 (k7\_waybel\_0 X0)))))))))) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & (((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))))\wedge(m1\_subset\_1 X3 X0))\Rightarrow(m1\_subset\_1 ( \\ & k3\_funct\_2 X0 X1 X2 X3) X1) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.(v1\_orders\_2 (k2\_yellow\_1 X0))\wedge(l1\_orders\_2 (k2\_yellow\_1 X0)) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\forall X1. \\ & ((\neg v2\_struct\_0 X1)\wedge(l1\_orders\_2 X1))\Rightarrow(\forall X2.((v1\_funct\_1 \\ & X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1))\wedge(m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1))))))\Rightarrow \\ & ((v5\_orders\_3 X2 X0 X1)\Leftrightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ & X0))\Rightarrow(\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0))\Rightarrow((r1\_orders\_2 \\ & X0 X3 X4)\Rightarrow(r1\_orders\_2 X1 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1) X2 X3) (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2 X4))))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v3\_orders\_2 X0)\wedge((v4\_orders\_2 \\ & X0)\wedge(l1\_orders\_2 X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge((v4\_yellow\_0 \\ & X1 X0)\wedge(m1\_yellow\_0 X1 X0)))\Rightarrow(\forall X2.((v1\_funct\_1 X2)\wedge(( \\ & v1\_funct\_2 X2 (u1\_struct\_0 (k2\_yellow\_1 (k7\_waybel\_0 X1))) (u1\_struct\_0 \\ & (k2\_yellow\_1 (k7\_waybel\_0 X0))))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 (k2\_yellow\_1 (k7\_waybel\_0 X1))) (u1\_struct\_0 \\ & (k2\_yellow\_1 (k7\_waybel\_0 X0))))))\Rightarrow((X2 = k4\_waybel23 X0 X1)\Leftrightarrow \\ & (\forall X3.((\neg v1\_xboole\_0 X3)\wedge((v1\_waybel\_0 X3 X1)\wedge((v12\_waybel\_0 \\ & X3 X1)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X1))))))\Rightarrow(\exists X4. \\ & (m1\_subset\_1 X4 (k1\_zfmisc\_1 (u1\_struct\_0 X0))\wedge((X3 = X4)\wedge(k1\_funct\_1 \\ & X2 X3 = k3\_waybel\_0 X0 X4)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v4\_orders\_2 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\forall X1. \\ & (m1\_yellow\_0 X1 X0)\Rightarrow((v4\_yellow\_0 X1 X0)\Rightarrow((v4\_orders\_2 X1)\wedge( \\ & v4\_yellow\_0 X1 X0)))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v3\_orders\_2 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\forall X1. \\ & (m1\_yellow\_0 X1 X0)\Rightarrow((v4\_yellow\_0 X1 X0)\Rightarrow((v3\_orders\_2 X1)\wedge( \\ & v4\_yellow\_0 X1 X0)))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (18)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\ X0) \wedge (l1\_orders\_2 X0)))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v4\_yellow\_0 \\ X1 X0) \wedge (m1\_yellow\_0 X1 X0))) \Rightarrow (v5\_orders\_3 (k4\_waybel23 X0 X1) \\ (k2\_yellow\_1 (k7\_waybel\_0 X1)) (k2\_yellow\_1 (k7\_waybel\_0 X0)))) \end{aligned}$$