

# t20\_waybel30 (TMX- PDn2yiAdAra22qCzuSRkaBz3UZxRK6Hw)

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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  $v2\_lattice3 : \iota \Rightarrow o$  be given. Let  $v3\_lattice3 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v2\_waybel19 : \iota \Rightarrow o$  be given. Let  $m1\_yellow\_9 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_yellow\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_waybel\_3 : \iota \Rightarrow o$  be given. Let  $k2\_yellow\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_waybel11 : \iota \Rightarrow \iota$  be given. Let  $g1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_pre\_topc : \iota \Rightarrow \iota$  be given. Let  $k2\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_waybel19 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $g1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $u1\_orders\_2 : \iota \Rightarrow \iota$  be given. Let  $l1\_waybel\_9 : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $k2\_yellow\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_setfam\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_mcart\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 \\
& X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 X0) \wedge ((v3\_lattice3 X0) \wedge \\
& (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.((v3\_orders\_2 X1) \wedge ((v4\_orders\_2 \\
& X1) \wedge ((v5\_orders\_2 X1) \wedge ((v1\_lattice3 X1) \wedge ((v2\_lattice3 X1) \wedge \\
& ((v3\_lattice3 X1) \wedge (l1\_orders\_2 X1)))))) \Rightarrow (\forall X2.((v2\_pre\_topc \\
& X2) \wedge ((v2\_waybel19 X2) \wedge (m1\_yellow\_9 X2 X0))) \Rightarrow (\forall X3.((v2\_pre\_topc \\
& X3) \wedge ((v2\_waybel19 X3) \wedge (m1\_yellow\_9 X3 X1))) \Rightarrow ((v3\_waybel\_3 ( \\
& k2\_yellow\_1 (k5\_waybel11 X1))) \Rightarrow (u1\_pre\_topc (k2\_borsuk\_1 X2 \\
& X3) = k2\_waybel19 (k3\_yellow\_3 X0 X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X0))) \Rightarrow (\forall X2. \forall X3. (g1\_orders\_2 X0 X1 = g1\_orders\_2 \\
& X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3)))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(((v2\_lattice3\ X0)\wedge(l1\_orders\_2\ X0))\wedge((v2\_lattice3\ X1)\wedge(l1\_orders\_2\ X1)))\Rightarrow((v1\_orders\_2\ (k3\_yellow\_3\ X0\ X1))\wedge(v2\_lattice3\ (k3\_yellow\_3\ X0\ X1))) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_lattice3\ X0)\wedge(l1\_orders\_2\ X0))\wedge((v1\_lattice3\ X1)\wedge(l1\_orders\_2\ X1)))\Rightarrow((v1\_orders\_2\ (k3\_yellow\_3\ X0\ X1))\wedge(v1\_lattice3\ (k3\_yellow\_3\ X0\ X1))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((v4\_orders\_2\ X0)\wedge(l1\_orders\_2\ X0))\wedge((v4\_orders\_2\ X1)\wedge(l1\_orders\_2\ X1)))\Rightarrow((v1\_orders\_2\ (k3\_yellow\_3\ X0\ X1))\wedge(v4\_orders\_2\ (k3\_yellow\_3\ X0\ X1))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(((v5\_orders\_2\ X0)\wedge(l1\_orders\_2\ X0))\wedge((v5\_orders\_2\ X1)\wedge(l1\_orders\_2\ X1)))\Rightarrow((v1\_orders\_2\ (k3\_yellow\_3\ X0\ X1))\wedge(v5\_orders\_2\ (k3\_yellow\_3\ X0\ X1))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(((v3\_orders\_2\ X0)\wedge(l1\_orders\_2\ X0))\wedge((v3\_orders\_2\ X1)\wedge(l1\_orders\_2\ X1)))\Rightarrow((v1\_orders\_2\ (k3\_yellow\_3\ X0\ X1))\wedge(v3\_orders\_2\ (k3\_yellow\_3\ X0\ X1))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((v5\_orders\_2\ X0)\wedge((v3\_lattice3\ X0)\wedge(l1\_orders\_2\ X0))))\wedge((\neg v2\_struct\_0\ X1)\wedge((v5\_orders\_2\ X1)\wedge((v3\_lattice3\ X1)\wedge(l1\_orders\_2\ X1))))\Rightarrow((v1\_orders\_2\ (k3\_yellow\_3\ X0\ X1))\wedge(v3\_lattice3\ (k3\_yellow\_3\ X0\ X1))) \quad (8)$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow(m1\_subset\_1\ (u1\_orders\_2\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))) \quad (9)$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow(\forall X1.(m1\_yellow\_9\ X1\ X0)\Rightarrow(l1\_waybel\_9\ X1)) \quad (10)$$

Assume the following.

$$\forall X0.(l1\_waybel\_9\ X0)\Rightarrow((l1\_pre\_topc\ X0)\wedge(l1\_orders\_2\ X0)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((l1\_orders\_2 X0)\wedge(l1\_orders\_2 X1))\Rightarrow( (v1\_orders\_2 (k3\_yellow\_3 X0 X1))\wedge(l1\_orders\_2 (k3\_yellow\_3 X0 X1))) \quad (12)$$

Assume the following.

$$\forall X0.((v3\_orders\_2 X0)\wedge((v4\_orders\_2 X0)\wedge((v5\_orders\_2 X0)\wedge((v1\_lattice3 X0)\wedge((v2\_lattice3 X0)\wedge((v3\_lattice3 X0)\wedge(l1\_orders\_2 X0)))))))\Rightarrow(m1\_subset\_1 (k2\_waybel19 X0) (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.(((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\wedge((v2\_pre\_topc X1)\wedge(l1\_pre\_topc X1)))\Rightarrow((v1\_pre\_topc (k2\_borsuk\_1 X0 X1))\wedge((v2\_pre\_topc (k2\_borsuk\_1 X0 X1))\wedge(l1\_pre\_topc (k2\_borsuk\_1 X0 X1)))) \quad (14)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0)\Rightarrow(\forall X1.(l1\_waybel\_9 X1)\Rightarrow((m1\_yellow\_9 X1 X0)\Leftrightarrow(g1\_orders\_2 (u1\_struct\_0 X1) (u1\_orders\_2 X1) = g1\_orders\_2 (u1\_struct\_0 X0) (u1\_orders\_2 X0)))) \quad (15)$$

Assume the following.

$$\forall X0.((v3\_orders\_2 X0)\wedge((v4\_orders\_2 X0)\wedge((v5\_orders\_2 X0)\wedge((v1\_lattice3 X0)\wedge((v2\_lattice3 X0)\wedge((v3\_lattice3 X0)\wedge(l1\_orders\_2 X0)))))))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))\Rightarrow((X1 = k2\_waybel19 X0)\Leftrightarrow(\forall X2. ((v2\_pre\_topc X2)\wedge((v2\_waybel19 X2)\wedge(m1\_yellow\_9 X2 X0))\Rightarrow(X1 = u1\_pre\_topc X2)))))) \quad (16)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0)\Rightarrow(\forall X1.(l1\_orders\_2 X1)\Rightarrow(\forall X2. ((v1\_orders\_2 X2)\wedge(l1\_orders\_2 X2))\Rightarrow((X2 = k3\_yellow\_3 X0 X1)\Leftrightarrow((u1\_struct\_0 X2 = k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1))\wedge(u1\_orders\_2 X2 = k2\_yellow\_3 (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_struct\_0 X1) (u1\_struct\_0 X1) (u1\_orders\_2 X0) (u1\_orders\_2 X1)))))) \quad (17)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow(\forall X1. \\
& ((v2\_pre\_topc\ X1)\wedge(l1\_pre\_topc\ X1))\Rightarrow(\forall X2.((v1\_pre\_topc \\
& X2)\wedge((v2\_pre\_topc\ X2)\wedge(l1\_pre\_topc\ X2)))\Rightarrow((X2 = k2\_borsuk\_1 \\
& X0\ X1)\Leftrightarrow((u1\_struct\_0\ X2 = k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0 \\
& X1))\wedge(u1\_pre\_topc\ X2 = ReplSep\ (toset\ (\lambda X3 : \iota.m1\_subset\_1 \\
& X3\ (k1\_zfmisc\_1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X2))))))\ (\lambda X3 : \iota. \\
& r1\_tarski\ X3\ (ReplSep2\ (toset\ (\lambda X4 : \iota.m1\_subset\_1\ X4\ (k1\_zfmisc\_1 \\
& (u1\_struct\_0\ X0))))\ (\lambda X4 : \iota.toset\ (\lambda X5 : \iota.m1\_subset\_1 \\
& X5\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X1))))\ (\lambda X4 : \iota.\lambda X5 : \iota. \\
& (X4 \in u1\_pre\_topc\ X0)\wedge(X5 \in u1\_pre\_topc\ X1))\ (\lambda X4 : \iota.\lambda X5 : \\
& \iota.k8\_mcart\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X4\ X5)))\ (\lambda X3 : \\
& \iota.k5\_setfam\_1\ (u1\_struct\_0\ X2)\ X3))))))
\end{aligned} \tag{18}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow((v1\_lattice3\ X0)\Rightarrow(\neg v2\_struct\_0\ X0)) \tag{19}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow((v1\_pre\_topc\ X0)\Rightarrow(X0 = g1\_pre\_topc \\
(u1\_struct\_0\ X0)\ (u1\_pre\_topc\ X0))) \tag{20}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v3\_orders\_2\ X0)\wedge((v4\_orders\_2\ X0)\wedge((v5\_orders\_2 \\
& X0)\wedge((v1\_lattice3\ X0)\wedge((v2\_lattice3\ X0)\wedge((v3\_lattice3\ X0)\wedge \\
& (l1\_orders\_2\ X0))))))\Rightarrow(\forall X1.((v3\_orders\_2\ X1)\wedge((v4\_orders\_2 \\
& X1)\wedge((v5\_orders\_2\ X1)\wedge((v1\_lattice3\ X1)\wedge((v2\_lattice3\ X1)\wedge \\
& ((v3\_lattice3\ X1)\wedge(l1\_orders\_2\ X1))))))\Rightarrow(\forall X2.((v2\_pre\_topc \\
& X2)\wedge((v2\_waybel19\ X2)\wedge(m1\_yellow\_9\ X2\ (k3\_yellow\_3\ X0\ X1))))\Rightarrow \\
& (\forall X3.((v2\_pre\_topc\ X3)\wedge((v2\_waybel19\ X3)\wedge(m1\_yellow\_9 \\
& X3\ X0)))\Rightarrow(\forall X4.((v2\_pre\_topc\ X4)\wedge((v2\_waybel19\ X4)\wedge(m1\_yellow\_9 \\
& X4\ X1)))\Rightarrow((v3\_waybel\_3\ (k2\_yellow\_1\ (k5\_waybel11\ X1)))\Rightarrow(g1\_pre\_topc \\
& (u1\_struct\_0\ X2)\ (u1\_pre\_topc\ X2) = k2\_borsuk\_1\ X3\ X4))))))
\end{aligned}$$