

# t43\_waybel34 (TMbcdaKbekDX- iEwTXYPZ7XZEK1Wk5KxhCbU)

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Let  $v2\_setfam\_1 : \iota \Rightarrow o$  be given. 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  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k8\_waybel34 : \iota \Rightarrow \iota$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v3\_lattice3 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k4\_waybel34 : \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_altcat\_1 : \iota \Rightarrow o$  be given. Let  $m1\_altcat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_altcat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_altcat\_1 : \iota \Rightarrow o$  be given. Let  $v6\_altcat\_1 : \iota \Rightarrow o$  be given. Let  $v3\_altcat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v11\_altcat\_1 : \iota \Rightarrow o$  be given. Let  $v12\_altcat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_yellow21 : \iota \Rightarrow o$  be given. Let  $r2\_altcat\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_altcat\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_altcat\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v22\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_yellow21 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_yellow21 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v2\_setfam\_1 X0) \Rightarrow (\forall X1.((v3\_orders\_2 X1) \wedge \\ ((v4\_orders\_2 X1) \wedge ((v5\_orders\_2 X1) \wedge ((v1\_lattice3 X1) \wedge ((v2\_lattice3 \\ X1) \wedge (l1\_orders\_2 X1)))))) \Rightarrow ((m1\_subset\_1 X1 (u1\_struct\_0 (k4\_waybel34 \\ X0))) \Leftrightarrow ((v1\_orders\_2 X1) \wedge ((v3\_lattice3 X1) \wedge (u1\_struct\_0 X1 \in \\ X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l2\_altcat\_1 X0) \Rightarrow (\forall X1.(m1\_altcat\_2 X1 X0) \Rightarrow (l2\_altcat\_1 X1)) \quad (6)$$

Assume the following.

$$\forall X0.(l2\_altcat\_1 X0) \Rightarrow (l1\_altcat\_1 X0) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_altcat\_1 X0) \Rightarrow (l1\_struct\_0 X0) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow ((\neg v2\_struct\_0 (k8\_waybel34 X0)) \wedge \\ ((v2\_altcat\_1 (k8\_waybel34 X0)) \wedge ((v6\_altcat\_1 (k8\_waybel34 \\ X0)) \wedge ((v3\_altcat\_2 (k8\_waybel34 X0) (k4\_waybel34 X0)) \wedge (m1\_altcat\_2 \\ (k8\_waybel34 X0) (k4\_waybel34 X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow ((\neg v2\_struct\_0 (k4\_waybel34 X0)) \wedge \\ ((v2\_altcat\_1 (k4\_waybel34 X0)) \wedge ((v6\_altcat\_1 (k4\_waybel34 \\ X0)) \wedge ((v11\_altcat\_1 (k4\_waybel34 X0)) \wedge ((v12\_altcat\_1 (k4\_waybel34 \\ X0)) \wedge ((v2\_yellow21 (k4\_waybel34 X0)) \wedge (l2\_altcat\_1 (k4\_waybel34 \\ X0)))))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.(l2\_altcat\_1 X0) \Rightarrow (\forall X1.(l2\_altcat\_1 X1) \Rightarrow (( \\ m1\_altcat\_2 X1 X0) \Leftrightarrow ((r1\_tarski (u1\_struct\_0 X1) (u1\_struct\_0 \\ X0)) \wedge ((r2\_altcat\_2 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 \\ X1)) (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_altcat\_1 \\ X1) (u1\_altcat\_1 X0)) \wedge (r2\_altcat\_2 (k3\_zfmisc\_1 (u1\_struct\_0 \\ X1) (u1\_struct\_0 X1) (u1\_struct\_0 X1)) (k3\_zfmisc\_1 (u1\_struct\_0 \\ X0) (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u2\_altcat\_1 X1) (u2\_altcat\_1 \\ X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge \\
& ((v2\_altcat\_1 X1) \wedge ((v6\_altcat\_1 X1) \wedge ((v3\_altcat\_2 X1 (k4\_waybel34 \\
& X0)) \wedge (m1\_altcat\_2 X1 (k4\_waybel34 X0)))))) \Rightarrow ((X1 = k8\_waybel34 \\
& X0) \Leftrightarrow ((\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 (k4\_waybel34 X0))) \Rightarrow \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X1))) \wedge (\forall X2.(m1\_subset\_1 \\
& X2 (u1\_struct\_0 (k4\_waybel34 X0))) \Rightarrow (\forall X3.(m1\_subset\_1 \\
& X3 (u1\_struct\_0 (k4\_waybel34 X0))) \Rightarrow (\forall X4.(m1\_subset\_1 \\
& X4 (u1\_struct\_0 X1)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 \\
& X1)) \Rightarrow (((X4 = X2) \wedge (X5 = X3)) \Rightarrow ((k1\_altcat\_1 (k4\_waybel34 X0) X2 X3 = \\
& k1\_xboole\_0) \vee (\forall X6.(m1\_subset\_1 X6 (k1\_altcat\_1 (k4\_waybel34 \\
& X0) X2 X3)) \Rightarrow ((X6 \in k1\_altcat\_1 X1 X4 X5) \Leftrightarrow (v22\_waybel\_0 (k5\_yellow21 \\
& (k4\_waybel34 X0) X2 X3 X6) (k3\_yellow21 (k4\_waybel34 X0) X2) (k3\_yellow21 \\
& (k4\_waybel34 X0) X3)))))))))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\forall X0.(\neg v2\_setfam\_1 X0) \Rightarrow (\neg v1\_xboole\_0 X0) \tag{13}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(\neg v2\_setfam\_1 X0) \Rightarrow (\forall X1.((v3\_orders\_2 X1) \wedge \\
& ((v4\_orders\_2 X1) \wedge ((v5\_orders\_2 X1) \wedge ((v1\_lattice3 X1) \wedge ((v2\_lattice3 \\
& X1) \wedge (l1\_orders\_2 X1)))))) \Rightarrow ((m1\_subset\_1 X1 (u1\_struct\_0 (k8\_waybel34 \\
& X0))) \Leftrightarrow ((v1\_orders\_2 X1) \wedge ((v3\_lattice3 X1) \wedge (u1\_struct\_0 X1 \in \\
& X0))))))
\end{aligned}$$