

## t40\_conlat\_1

(TMFxB87yjfFSL7LXnLyqLtT5d85XK7NDB7r)

October 27, 2020

Let  $v1\_conlat\_1 : \iota \Rightarrow o$  be given. Let  $l1\_conlat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_conlat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_conlat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_conlat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l2\_conlat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_conlat\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_conlat\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_setfam\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_conlat\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_conlat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_conlat\_1 : \iota \Rightarrow \iota$  be given. Let  $u3\_conlat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l5\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v9\_conlat\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $k8\_conlat\_1 : \iota \Rightarrow \iota$  be given. Let  $g2\_conlat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_conlat\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v1\_conlat\_1 X0) \wedge (l1\_conlat\_1 X0)) \Rightarrow (\forall X1. \\
 & \quad (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u4\_struct\_0 X0))) \Rightarrow (\forall X2. \\
 & \quad (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u4\_struct\_0 X0))) \Rightarrow ((r1\_tarski \\
 & \quad X1 X2) \Rightarrow (r1\_tarski (k3\_funct\_2 (k1\_zfmisc\_1 (u4\_struct\_0 X0)) \\
 & \quad (k9\_setfam\_1 (u1\_struct\_0 X0)) (k2\_conlat\_1 X0) X2) (k3\_funct\_2 \\
 & \quad (k1\_zfmisc\_1 (u4\_struct\_0 X0)) (k9\_setfam\_1 (u1\_struct\_0 X0)) \\
 & \quad (k2\_conlat\_1 X0) X1))))))
 \end{aligned} \tag{1}$$

Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. (r1\_tarski X0 X1) \Rightarrow (k3\_xboole\_0 X0 X1 = X0) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v1\_conlat\_1 X0) \wedge (l1\_conlat\_1 X0)) \Rightarrow ((u2\_conlat\_1 X0 (k5\_conlat\_1 X0) = u1\_struct\_0 X0) \wedge (u3\_conlat\_1 X0 (k6\_conlat\_1 X0) = u4\_struct\_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (r1\_tarski X0 X1) \Rightarrow (k2\_xboole\_0 X0 X1 = X1) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)) \Rightarrow (k9\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \quad (6)$$

Assume the following.

$$\forall X0. k9\_setfam\_1 X0 = k1\_zfmisc\_1 X0 \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))) \Rightarrow (k4\_subset\_1 X0 X1 X2 = k2\_xboole\_0 X1 X2) \quad (8)$$

Assume the following.

$$\forall X0. \forall X1. ((l5\_struct\_0 X0) \wedge (l2\_conlat\_1 X1 X0)) \Rightarrow (m1\_subset\_1 (u3\_conlat\_1 X0 X1) (k1\_zfmisc\_1 (u4\_struct\_0 X0))) \quad (9)$$

Assume the following.

$$\forall X0. \forall X1. ((l5\_struct\_0 X0) \wedge (l2\_conlat\_1 X1 X0)) \Rightarrow (m1\_subset\_1 (u2\_conlat\_1 X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \quad (10)$$

Assume the following.

$$\forall X0. (l1\_conlat\_1 X0) \Rightarrow (l5\_struct\_0 X0) \quad (11)$$

Assume the following.

$$\forall X0. ((\neg v1\_conlat\_1 X0) \wedge (l1\_conlat\_1 X0)) \Rightarrow ((v4\_conlat\_1 (k6\_conlat\_1 X0) X0) \wedge ((\neg v5\_conlat\_1 (k6\_conlat\_1 X0) X0) \wedge ((v7\_conlat\_1 (k6\_conlat\_1 X0) X0) \wedge ((v9\_conlat\_1 (k6\_conlat\_1 X0) X0) \wedge (l2\_conlat\_1 (k6\_conlat\_1 X0) X0)))))) \quad (12)$$

Assume the following.

$$\forall X0. ((\neg v1\_conlat\_1 X0) \wedge (l1\_conlat\_1 X0)) \Rightarrow ((v1\_funct\_1 (k10\_conlat\_1 X0)) \wedge ((v1\_funct\_2 (k10\_conlat\_1 X0) (k2\_zfmisc\_1 (k8\_conlat\_1 X0) (k8\_conlat\_1 X0)) (k8\_conlat\_1 X0)) \wedge (m1\_subset\_1 (k10\_conlat\_1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (k8\_conlat\_1 X0) (k8\_conlat\_1 X0)) (k8\_conlat\_1 X0)))))) \quad (13)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_conlat\_1 X0) \wedge (l1\_conlat\_1 X0)) \Rightarrow (\forall X1. \\
& ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (k2\_zfmisc\_1 (k8\_conlat\_1 X0) \\
& (k8\_conlat\_1 X0)) (k8\_conlat\_1 X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (k2\_zfmisc\_1 (k8\_conlat\_1 X0) (k8\_conlat\_1 X0)) \\
& (k8\_conlat\_1 X0)))))) \Rightarrow ((X1 = k10\_conlat\_1 X0) \Leftrightarrow (\forall X2.(( \\
& v4\_conlat\_1 X2 X0) \wedge ((\neg v5\_conlat\_1 X2 X0) \wedge ((v7\_conlat\_1 X2 X0) \wedge \\
& (l2\_conlat\_1 X2 X0)))) \Rightarrow (\forall X3.((v4\_conlat\_1 X3 X0) \wedge ((\neg v5\_conlat\_1 \\
& X3 X0) \wedge ((v7\_conlat\_1 X3 X0) \wedge (l2\_conlat\_1 X3 X0)))) \Rightarrow (\exists X4. \\
& (m1\_subset\_1 X4 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \wedge (\exists X5. \\
& (m1\_subset\_1 X5 (k1\_zfmisc\_1 (u4\_struct\_0 X0))) \wedge ((k1\_binop\_1 \\
& X1 X2 X3 = g2\_conlat\_1 X0 X4 X5) \wedge ((X4 = k3\_funct\_2 (k9\_setfam\_1 (u4\_struct\_0 \\
& X0)) (k9\_setfam\_1 (u1\_struct\_0 X0)) (k2\_conlat\_1 X0) (k3\_funct\_2 \\
& (k1\_zfmisc\_1 (u1\_struct\_0 X0)) (k9\_setfam\_1 (u4\_struct\_0 X0)) \\
& (k1\_conlat\_1 X0) (k4\_subset\_1 (u1\_struct\_0 X0) (u2\_conlat\_1 X0 \\
& X2) (u2\_conlat\_1 X0 X3)))))) \wedge (X5 = k9\_subset\_1 (u4\_struct\_0 X0) ( \\
& u3\_conlat\_1 X0 X2) (u3\_conlat\_1 X0 X3))))))))) \\
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_conlat\_1 X0) \wedge (l1\_conlat\_1 X0)) \Rightarrow (\forall X1. \\
& (l2\_conlat\_1 X1 X0) \Rightarrow ((v7\_conlat\_1 X1 X0) \Leftrightarrow ((k3\_funct\_2 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X0)) (k9\_setfam\_1 (u4\_struct\_0 X0)) (k1\_conlat\_1 \\
& X0) (u2\_conlat\_1 X0 X1) = u3\_conlat\_1 X0 X1) \wedge (k3\_funct\_2 (k1\_zfmisc\_1 \\
& (u4\_struct\_0 X0)) (k9\_setfam\_1 (u1\_struct\_0 X0)) (k2\_conlat\_1 \\
& X0) (u3\_conlat\_1 X0 X1) = u2\_conlat\_1 X0 X1)))) \\
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& X0)) \Rightarrow (k9\_subset\_1 X0 X1 X2 = k9\_subset\_1 X0 X2 X1) \\
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((m1\_subset\_1 X1 (k1\_zfmisc\_1 \\
& X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))) \Rightarrow (k4\_subset\_1 X0 X1 X2 = \\
& k4\_subset\_1 X0 X2 X1) \\
\end{aligned} \tag{17}$$

Assume the following.

$$\forall X0. \forall X1. k3\_xboole\_0 X0 X1 = k3\_xboole\_0 X1 X0 \tag{18}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((l5\_struct\_0 X0) \wedge (l2\_conlat\_1 X1 X0)) \Rightarrow \\
& ((v4\_conlat\_1 X1 X0) \Rightarrow (X1 = g2\_conlat\_1 X0 (u2\_conlat\_1 X0 X1) (u3\_conlat\_1 \\
& X0 X1))) \\
\end{aligned} \tag{19}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v1\_conlat\_1 X0) \wedge (l1\_conlat\_1 X0)) \Rightarrow (\forall X1. \\ & ((v4\_conlat\_1 X1 X0) \wedge ((\neg v5\_conlat\_1 X1 X0) \wedge ((v7\_conlat\_1 X1 X0) \wedge \\ & (l2\_conlat\_1 X1 X0)))) \Rightarrow (k1\_binop\_1 (k10\_conlat\_1 X0) X1 (k6\_conlat\_1 \\ & X0) = X1)) \end{aligned}$$