

## t15\_compos\_2

(TMHzT75ppAjqtP44XSZ1n1aEwuXHscEzjA2)

October 27, 2020

Let  $v1\_amistd\_4 : \iota \Rightarrow o$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  be given. Let  $v6\_compos\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_compos\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_compos\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_6 : \iota$  be given. Let  $np\_5 : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_afinsq\_1 : \iota \Rightarrow o$  be given. Let  $v3\_compos\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_compos\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_amistd\_4 X0) \wedge (l1\_compos\_1 X0)) \Rightarrow (\forall X1. \\ & ((v6\_compos\_0 X1 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X1 (u1\_compos\_1 \\ & X0))) \Rightarrow (\forall X2.((v6\_compos\_0 X2 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 \\ & X2 (u1\_compos\_1 X0))) \Rightarrow (\forall X3.((v6\_compos\_0 X3 (u1\_compos\_1 \\ & X0)) \wedge (m1\_subset\_1 X3 (u1\_compos\_1 X0))) \Rightarrow (\forall X4.((v6\_compos\_0 \\ & X4 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X4 (u1\_compos\_1 X0))) \Rightarrow (k5\_card\_1 \\ & (k2\_compos\_2 X0 (k2\_compos\_2 X0 (k3\_compos\_2 X0 X1 X2) X3) X4) = np\_5)))))) \\ & \hspace{15em} (1) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_amistd\_4 X0) \wedge (l1\_compos\_1 X0)) \Rightarrow (\forall X1. \\ & ((v6\_compos\_0 X1 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X1 (u1\_compos\_1 \\ & X0))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 \\ & X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 \\ & X2) \wedge ((v1\_finset\_1 X2) \wedge ((v1\_afinsq\_1 X2) \wedge ((v3\_compos\_1 X2 X0) \wedge \\ & (v4\_compos\_1 X2 X0)))))))))) \Rightarrow (k5\_card\_1 (k2\_compos\_2 X0 X2 X1) = \\ & k2\_xcmplx\_0 (k5\_card\_1 X2) np\_1))) \\ & \hspace{15em} (2) \end{aligned}$$

Assume the following.

$$k2\_xcmplx\_0 np\_5 np\_1 = np\_6 \hspace{15em} (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((v1\_amistd\_4 X0) \wedge (l1\_compos\_1 \\
& X0)) \wedge (((v6\_compos\_0 X1 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X1 (u1\_compos\_1 \\
& X0))) \wedge ((v6\_compos\_0 X2 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X2 (u1\_compos\_1 \\
& X0)))))) \Rightarrow ((\neg v1\_xboole\_0 (k3\_compos\_2 X0 X1 X2)) \wedge ((v1\_relat\_1 \\
& (k3\_compos\_2 X0 X1 X2)) \wedge ((v4\_relat\_1 (k3\_compos\_2 X0 X1 X2) k5\_numbers) \wedge \\
& ((v5\_relat\_1 (k3\_compos\_2 X0 X1 X2) (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 \\
& (k3\_compos\_2 X0 X1 X2)) \wedge ((v1\_finset\_1 (k3\_compos\_2 X0 X1 X2)) \wedge \\
& ((v1\_afinsq\_1 (k3\_compos\_2 X0 X1 X2)) \wedge ((v3\_compos\_1 (k3\_compos\_2 \\
& X0 X1 X2) X0) \wedge (v4\_compos\_1 (k3\_compos\_2 X0 X1 X2) X0)))))))))) \\
& \tag{4}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((v1\_amistd\_4 X0) \wedge (l1\_compos\_1 \\
& X0)) \wedge (((\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge \\
& ((v5\_relat\_1 X1 (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_finset\_1 \\
& X1) \wedge ((v1\_afinsq\_1 X1) \wedge ((v3\_compos\_1 X1 X0) \wedge (v4\_compos\_1 X1 X0)))))))))) \wedge \\
& ((v6\_compos\_0 X2 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X2 (u1\_compos\_1 \\
& X0)))))) \Rightarrow ((\neg v1\_xboole\_0 (k2\_compos\_2 X0 X1 X2)) \wedge ((v1\_relat\_1 \\
& (k2\_compos\_2 X0 X1 X2)) \wedge ((v4\_relat\_1 (k2\_compos\_2 X0 X1 X2) k5\_numbers) \wedge \\
& ((v5\_relat\_1 (k2\_compos\_2 X0 X1 X2) (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 \\
& (k2\_compos\_2 X0 X1 X2)) \wedge ((v1\_finset\_1 (k2\_compos\_2 X0 X1 X2)) \wedge \\
& ((v1\_afinsq\_1 (k2\_compos\_2 X0 X1 X2)) \wedge ((v3\_compos\_1 (k2\_compos\_2 \\
& X0 X1 X2) X0) \wedge (v4\_compos\_1 (k2\_compos\_2 X0 X1 X2) X0)))))))))) \\
& \tag{5}
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0. ((v1\_amistd\_4 X0) \wedge (l1\_compos\_1 X0)) \Rightarrow (\forall X1. \\
& ((v6\_compos\_0 X1 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X1 (u1\_compos\_1 \\
& X0))) \Rightarrow (\forall X2. ((v6\_compos\_0 X2 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 \\
& X2 (u1\_compos\_1 X0))) \Rightarrow (\forall X3. ((v6\_compos\_0 X3 (u1\_compos\_1 \\
& X0)) \wedge (m1\_subset\_1 X3 (u1\_compos\_1 X0))) \Rightarrow (\forall X4. ((v6\_compos\_0 \\
& X4 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X4 (u1\_compos\_1 X0))) \Rightarrow (\forall X5. \\
& ((v6\_compos\_0 X5 (u1\_compos\_1 X0)) \wedge (m1\_subset\_1 X5 (u1\_compos\_1 \\
& X0))) \Rightarrow (k5\_card\_1 (k2\_compos\_2 X0 (k2\_compos\_2 X0 (k2\_compos\_2 \\
& X0 (k3\_compos\_2 X0 X1 X2) X3) X4) X5) = np\_6))))))
\end{aligned}$$