

## t22\_compos\_2

(TMS5zUKHF2sy7CJLj5J4TL6SU7DEYDc3n3e)

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Let  $v1\_amistd\_4 : \iota \Rightarrow o$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  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  $u1\_compos\_1 : \iota \Rightarrow \iota$  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  $r2\_compos\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k63\_valued\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_compos\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_amistd\_4 X0) \wedge (l1\_compos\_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v1\_xboole\_0 X1) \wedge (v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge \\
& ((v5\_relat\_1 X1 (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_finset\_1 \\
& X1) \wedge ((v1\_afinsq\_1 X1) \wedge ((v3\_compos\_1 X1 X0) \wedge (v4\_compos\_1 X1 X0))))))) \Rightarrow \\
& (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 \\
& X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 \\
& X2) \wedge ((v1\_finset\_1 X2) \wedge ((v1\_afinsq\_1 X2) \wedge ((v3\_compos\_1 X2 X0) \wedge \\
& (v4\_compos\_1 X2 X0)))))))))) \Rightarrow ((k63\_valued\_1 X1 = k63\_valued\_1 \\
& X2) \Rightarrow (X1 = X2)))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_amistd\_4 X0) \wedge (l1\_compos\_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge \\
& ((v5\_relat\_1 X1 (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_finset\_1 \\
& X1) \wedge ((v1\_afinsq\_1 X1) \wedge (v4\_compos\_1 X1 X0))))))) \Rightarrow (\forall X2. \\
& ((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge \\
& ((v5\_relat\_1 X2 (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 \\
& X2) \wedge ((v1\_afinsq\_1 X2) \wedge (v3\_compos\_1 X2 X0)))))))))) \Rightarrow ((r1\_tarski \\
& (k63\_valued\_1 X1) X2) \Rightarrow (r1\_tarski (k63\_valued\_1 X1) (k63\_valued\_1 \\
& X2))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v1\_xboole\_0 X0) \wedge (v1\_relat\_1 X0) \wedge \\ & ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finset\_1 X0)))) \wedge \\ & ((\neg v1\_xboole\_0 X1) \wedge (v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge \\ & ((v1\_funct\_1 X1) \wedge (v1\_finset\_1 X1)))))) \Rightarrow ((r2\_compos\_2 X0 X1) \Leftrightarrow \\ & (r1\_compos\_2 X0 X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_relat\_1 X0) \wedge ((v4\_relat\_1 \\ & X0 k5\_numbers) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finset\_1 X0)))) \Rightarrow (\forall X1. \\ & (r1\_compos\_2 X0 X1) \Leftrightarrow (r1\_tarski (k63\_valued\_1 X0) X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (X0 = X1) \Leftrightarrow ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X0)) \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((v1\_amistd\_4 X0) \wedge (l1\_compos\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge \\ & ((v5\_relat\_1 X1 (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_finset\_1 \\ & X1) \wedge ((v1\_afinsq\_1 X1) \wedge ((v3\_compos\_1 X1 X0) \wedge (v4\_compos\_1 X1 X0))))))))) \Rightarrow \\ & (\forall X2. ((\neg v1\_xboole\_0 X2) \wedge (v1\_relat\_1 X2) \wedge ((v4\_relat\_1 \\ & X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 \\ & X2) \wedge ((v1\_finset\_1 X2) \wedge ((v1\_afinsq\_1 X2) \wedge ((v3\_compos\_1 X2 X0) \wedge \\ & (v4\_compos\_1 X2 X0))))))))) \Rightarrow ((r2\_compos\_2 X1 X2) \wedge (r2\_compos\_2 \\ & X2 X1)) \Rightarrow (X1 = X2))) \end{aligned}$$