

# t16\_c0sp1

(TMJbD7aNPQHnsR7QwD764MnrU4VZ7skHygM)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_group\_1 : \iota \Rightarrow \iota$  be given. Let  $k7\_c0sp1 : \iota \Rightarrow \iota$  be given. Let  $k8\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v2\_funcsdom : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v5\_group\_1 : \iota \Rightarrow o$  be given. Let  $v1\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v3\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_funcsdom : \iota \Rightarrow o$  be given. Let  $m2\_c0sp1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_group\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k1\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v4\_c0sp1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_c0sp1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $g1\_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_c0sp1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_c0sp1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_c0sp1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_c0sp1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_c0sp1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $l4\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k5\_struct\_0 : \iota \Rightarrow \iota$  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  $k12\_funcsdom : \iota \Rightarrow \iota$  be given. Let  $v1\_funcsdom : \iota \Rightarrow o$  be given. Let  $k6\_c0sp1 : \iota \Rightarrow \iota$  be given. Let  $l6\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l4\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $k9\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_funcsdom : \iota \Rightarrow \iota$  be given. Let  $k8\_funcsdom : \iota \Rightarrow \iota$  be given. Let  $k7\_funcsdom : \iota \Rightarrow \iota$  be given. Let  $k6\_funcsdom : \iota \Rightarrow \iota$  be given. Let  $k5\_funcsdom : \iota \Rightarrow \iota$  be given. Let  $u3\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u2\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_rlvect\_1 : \iota \Rightarrow \iota$  be given. Let  $u2\_struct\_0 : \iota \Rightarrow \iota$  be given.

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v2\_funcsdom X0) \wedge ((v3\_group\_1 \\
& X0) \wedge ((v5\_group\_1 X0) \wedge ((v1\_vectsp\_1 X0) \wedge ((v3\_vectsp\_1 X0) \wedge ( \\
& l1\_funcsdom X0)))))))))) \Rightarrow (\forall X1.(m2\_c0sp1 X1 X0) \Rightarrow ( \\
& (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 \\
& X3 (u1\_struct\_0 X1)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (((X2 = X4) \wedge \\
& (X3 = X5)) \Rightarrow (k3\_rlvect\_1 X1 X2 X3 = k3\_rlvect\_1 X0 X4 X5)))))) \wedge ((\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (u1\_struct\_0 X1)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (((X2 = X4) \wedge (X3 = \\
& X5)) \Rightarrow (k8\_group\_1 X1 X2 X3 = k8\_group\_1 X0 X4 X5)))))) \wedge ((\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 k1\_numbers) \Rightarrow ( \\
& (X2 = X3) \Rightarrow (k1\_rlvect\_1 X1 X2 X4 = k1\_rlvect\_1 X0 X3 X4)))))) \wedge ((k1\_group\_1 \\
& X1 = k1\_group\_1 X0) \wedge (k4\_struct\_0 X1 = k4\_struct\_0 X0))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v2\_funcsdom X0) \wedge ((v3\_group\_1 \\
& X0) \wedge ((v5\_group\_1 X0) \wedge ((v1\_vectsp\_1 X0) \wedge ((v3\_vectsp\_1 X0) \wedge ( \\
& l1\_funcsdom X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X0))) \Rightarrow (((v4\_c0sp1 X1 X0) \wedge (v3\_c0sp1 X1 X0)) \Rightarrow ((v1\_xboole\_0 \\
& X1) \vee (m2\_c0sp1 (g1\_funcsdom X1 (k2\_c0sp1 X0 X1) (k1\_c0sp1 X0 X1) \\
& (k5\_c0sp1 X0 X1) (k4\_c0sp1 X0 X1) (k3\_c0sp1 X0 X1)) X0))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X1) \wedge (m1\_funct\_2 \\
& X2 X0 X1)) \Rightarrow (\forall X3. (m2\_funct\_2 X3 X0 X1 X2) \Leftrightarrow (m1\_subset\_1 X3 \\
& X2))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v4\_vectsp\_1 X0) \wedge (l4\_algstr\_0 \\
& X0))) \Rightarrow (k1\_group\_1 X0 = k5\_struct\_0 X0)
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& (((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0)\wedge(m1\_subset\_1 \\
& X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0))))\wedge((v1\_funct\_1 \\
& X2)\wedge((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 X0) X0)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0))))\wedge((v1\_funct\_1 X3)\wedge( \\
& (v1\_funct\_2 X3 (k2\_zfmisc\_1 k1\_numbers X0) X0)\wedge(m1\_subset\_1 X3 \\
& (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers X0) X0))))\wedge \\
& ((m1\_subset\_1 X4 X0)\wedge(m1\_subset\_1 X5 X0))))\Rightarrow(\forall X6.\forall X7. \\
& \forall X8.\forall X9.\forall X10.\forall X11.(g1\_funcsdom X0 \\
& X1 X2 X3 X4 X5 = g1\_funcsdom X6 X7 X8 X9 X10 X11)\Rightarrow((X0 = X6)\wedge((X1 = X7)\wedge \\
& ((X2 = X8)\wedge((X3 = X9)\wedge((X4 = X10)\wedge(X5 = X11))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v13\_algstr\_0 (k12\_funcsdom X0)\wedge((v3\_group\_1 (k12\_funcsdom \\
& X0)\wedge((v5\_group\_1 (k12\_funcsdom X0)\wedge((v1\_vectsp\_1 (k12\_funcsdom \\
& X0)\wedge((v3\_vectsp\_1 (k12\_funcsdom X0)\wedge((v2\_rlvect\_1 (k12\_funcsdom \\
& X0)\wedge((v3\_rlvect\_1 (k12\_funcsdom X0)\wedge((v4\_rlvect\_1 (k12\_funcsdom \\
& X0)\wedge((v5\_rlvect\_1 (k12\_funcsdom X0)\wedge((v6\_rlvect\_1 (k12\_funcsdom \\
& X0)\wedge((v7\_rlvect\_1 (k12\_funcsdom X0)\wedge((v1\_funcsdom (k12\_funcsdom \\
& X0)\wedge(v2\_funcsdom (k12\_funcsdom X0))))))))))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(v2\_struct\_0 (k12\_funcsdom X0)\wedge(v1\_funcsdom (k12\_funcsdom X0)) \tag{7}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow((v1\_xboole\_0 (k6\_c0sp1 X0)\wedge \\
((v3\_c0sp1 (k6\_c0sp1 X0) (k12\_funcsdom X0)\wedge(v4\_c0sp1 (k6\_c0sp1 X0) (k12\_funcsdom X0)))) \tag{8}$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \tag{9}$$

Assume the following.

$$\forall X0.(l6\_algstr\_0 X0)\Rightarrow((l2\_algstr\_0 X0)\wedge(l5\_algstr\_0 X0)) \tag{10}$$

Assume the following.

$$\forall X0.(l5\_algstr\_0 X0)\Rightarrow((l4\_algstr\_0 X0)\wedge(l4\_struct\_0 X0)) \tag{11}$$

Assume the following.

$$\forall X0.(l4\_algstr\_0 X0)\Rightarrow((l3\_struct\_0 X0)\wedge(l3\_algstr\_0 X0)) \tag{12}$$

Assume the following.

$$\forall X0.(l1\_funcsdom\ X0)\Rightarrow((l6\_algstr\_0\ X0)\wedge(l1\_rlvect\_1\ X0)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0\ X1)\Rightarrow(m1\_funct\_2\ (k9\_funct\_2\ X0\ X1)\ X0\ X1) \quad (14)$$

Assume the following.

$$\forall X0.m2\_funct\_2\ (k9\_funcsdom\ X0)\ X0\ k1\_numbers\ (k9\_funct\_2\ X0\ k1\_numbers) \quad (15)$$

Assume the following.

$$\forall X0.m2\_funct\_2\ (k8\_funcsdom\ X0)\ X0\ k1\_numbers\ (k9\_funct\_2\ X0\ k1\_numbers) \quad (16)$$

Assume the following.

$$\begin{aligned} &\forall X0.(v1\_funct\_1\ (k7\_funcsdom\ X0))\wedge((v1\_funct\_2\ (k7\_funcsdom\ X0)\ (k2\_zfmisc\_1\ k1\_numbers\ (k9\_funct\_2\ X0\ k1\_numbers))\ (k9\_funct\_2\ X0\ k1\_numbers))\wedge(m1\_subset\_1\ (k7\_funcsdom\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ (k9\_funct\_2\ X0\ k1\_numbers))\ (k9\_funct\_2\ X0\ k1\_numbers)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} &\forall X0.(v1\_funct\_1\ (k6\_funcsdom\ X0))\wedge((v1\_funct\_2\ (k6\_funcsdom\ X0)\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ k1\_numbers)\ (k9\_funct\_2\ X0\ k1\_numbers))\ (k9\_funct\_2\ X0\ k1\_numbers))\wedge(m1\_subset\_1\ (k6\_funcsdom\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ k1\_numbers)\ (k9\_funct\_2\ X0\ k1\_numbers))\ (k9\_funct\_2\ X0\ k1\_numbers)))))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow((\neg v1\_xboole\_0\ (k6\_c0sp1\ X0))\wedge(m1\_subset\_1\ (k6\_c0sp1\ X0)\ (k1\_zfmisc\_1\ (u1\_struct\_0\ (k12\_funcsdom\ X0)))))) \quad (19)$$

Assume the following.

$$\begin{aligned} &\forall X0.(v1\_funct\_1\ (k5\_funcsdom\ X0))\wedge((v1\_funct\_2\ (k5\_funcsdom\ X0)\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ k1\_numbers)\ (k9\_funct\_2\ X0\ k1\_numbers))\ (k9\_funct\_2\ X0\ k1\_numbers))\wedge(m1\_subset\_1\ (k5\_funcsdom\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ k1\_numbers)\ (k9\_funct\_2\ X0\ k1\_numbers))\ (k9\_funct\_2\ X0\ k1\_numbers)))))) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.(v1\_funcsdom (k12\_funcsdom X0)) \wedge (l1\_funcsdom (k12\_funcsdom X0)) \quad (21)$$

Assume the following.

$$\forall X0.k12\_funcsdom X0 = g1\_funcsdom (k9\_funct\_2 X0 k1\_numbers) (k6\_funcsdom X0) (k5\_funcsdom X0) (k7\_funcsdom X0) (k9\_funcsdom X0) (k8\_funcsdom X0) \quad (22)$$

Assume the following.

$$\forall X0.(l3\_struct\_0 X0) \Rightarrow (k5\_struct\_0 X0 = u3\_struct\_0 X0) \quad (23)$$

Assume the following.

$$\forall X0.k9\_funcsdom X0 = k8\_funcop\_1 k5\_numbers X0 np\_1 \quad (24)$$

Assume the following.

$$\forall X0.( \neg v1\_xboole\_0 X0) \Rightarrow (k7\_c0sp1 X0 = g1\_funcsdom (k6\_c0sp1 X0) (k2\_c0sp1 (k12\_funcsdom X0) (k6\_c0sp1 X0)) (k1\_c0sp1 (k12\_funcsdom X0) (k6\_c0sp1 X0)) (k5\_c0sp1 (k12\_funcsdom X0) (k6\_c0sp1 X0)) (k4\_c0sp1 (k12\_funcsdom X0) (k6\_c0sp1 X0)) (k3\_c0sp1 (k12\_funcsdom X0) (k6\_c0sp1 X0))) \quad (25)$$

Assume the following.

$$\forall X0.(l4\_algstr\_0 X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge ((v5\_group\_1 X0) \wedge (v3\_vectsp\_1 X0))) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v4\_vectsp\_1 X0))) \quad (26)$$

Assume the following.

$$\forall X0.(l1\_funcsdom X0) \Rightarrow ((v1\_funcsdom X0) \Rightarrow (X0 = g1\_funcsdom (u1\_struct\_0 X0) (u2\_algstr\_0 X0) (u1\_algstr\_0 X0) (u1\_rlvect\_1 X0) (u3\_struct\_0 X0) (u2\_struct\_0 X0))) \quad (27)$$

**Theorem 1**

$$\forall X0.( \neg v1\_xboole\_0 X0) \Rightarrow (k1\_group\_1 (k7\_c0sp1 X0) = k8\_funcop\_1 k5\_numbers X0 np\_1)$$