

# t77\_csspace (TM- FxfjLpXqKdZqmL6DC7tfps6ZCBGPZPFZ4P)

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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  $v2\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v2\_csspace : \iota \Rightarrow o$  be given. Let  $l1\_csspace : \iota \Rightarrow o$  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  $k5\_numbers : \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_normsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k16\_csspace : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_vfunct\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_clvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_complex1 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k2\_normsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $k2\_numbers : \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v2\_csspace X0) \wedge (l1\_csspace X0)))))))))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (r2\_funct\_2 k5\_numbers (u1\_struct\_0 X0) (k3\_normsp\_1 X0 X1 (k16\_csspace X0 X2 X3)) (k3\_normsp\_1 X0 (k3\_normsp\_1 X0 X1 X2) X3))))))
\end{aligned}$$

(1)

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\ & ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v2\_csspace \\ & X0) \wedge (l1\_csspace X0)))))))))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge \\ & ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X1 \\ & (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow \\ & (r2\_funct\_2 k5\_numbers (u1\_struct\_0 X0) X1 (k5\_vfunct\_1 k5\_numbers \\ & X0 (k5\_vfunct\_1 k5\_numbers X0 X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\ & ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v2\_csspace \\ & X0) \wedge (l1\_csspace X0)))))))))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge \\ & ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X1 \\ & (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow \\ & (r2\_funct\_2 k5\_numbers (u1\_struct\_0 X0) (k6\_clvect\_1 X0 X1 k6\_complex1 \\ & X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (4)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\ & X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge \\ & ((v2\_clvect\_1 X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 \\ & X0) \wedge ((v2\_csspace X0) \wedge (l1\_csspace X0)))))))))) \wedge (((v1\_funct\_1 \\ & X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \wedge \\ & ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 X0)) \wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0)))))) \Rightarrow (k16\_csspace X0 X1 X2 = k2\_normsp\_1 X0 X1 X2)) \end{aligned} \quad (6)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v1\_xboole\_0 X0)\wedge(((\neg v2\_struct\_0 \\ & X1)\wedge(l2\_algstr\_0 X1))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 (u1\_struct\_0 \\ & X1))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 \\ & X1))))))))\Rightarrow((v1\_funct\_1 (k5\_vfunct\_1 X0 X1 X2))\wedge(v1\_partfun1 \\ & (k5\_vfunct\_1 X0 X1 X2) X0)) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(l1\_csspace X0)\Rightarrow(l1\_clvect\_1 X0) \quad (9)$$

Assume the following.

$$\forall X0.(l1\_clvect\_1 X0)\Rightarrow(l2\_algstr\_0 X0) \quad (10)$$

Assume the following.

$$m1\_subset\_1 k6\_complex1 k2\_numbers \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge((v13\_algstr\_0 \\ & X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge \\ & ((v2\_clvect\_1 X0)\wedge((v3\_clvect\_1 X0)\wedge((v4\_clvect\_1 X0)\wedge((v5\_clvect\_1 \\ & X0)\wedge(l1\_clvect\_1 X0))))))))))\wedge(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 \\ & X1 k5\_numbers (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0))))))\wedge(v1\_xcmplx\_0 \\ & X2))\Rightarrow((v1\_funct\_1 (k6\_clvect\_1 X0 X1 X2))\wedge((v1\_funct\_2 (k6\_clvect\_1 \\ & X0 X1 X2) k5\_numbers (u1\_struct\_0 X0))\wedge(m1\_subset\_1 (k6\_clvect\_1 \\ & X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v1\_xboole\_0 X0)\wedge(((\neg v2\_struct\_0 \\ & X1)\wedge(l2\_algstr\_0 X1))\wedge((v1\_funct\_1 X2)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1))))))))\Rightarrow((v1\_funct\_1 (k5\_vfunct\_1 \\ & X0 X1 X2))\wedge(m1\_subset\_1 (k5\_vfunct\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 (u1\_struct\_0 X1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(l2\_algstr\_0 \\ & X0))\wedge(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 \\ & X0))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0))))))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 \\ & X0))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0))))))))\Rightarrow((v1\_funct\_1 (k3\_normsp\_1 X0 X1 X2))\wedge((v1\_funct\_2 \\ & (k3\_normsp\_1 X0 X1 X2) k5\_numbers (u1\_struct\_0 X0))\wedge(m1\_subset\_1 \\ & (k3\_normsp\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_algstr\_0 X0)) \Rightarrow (\forall X1. \\ & ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers \\ & (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (k3\_normsp\_1 X0 X1 X2 = k2\_normsp\_1 \\ & X0 X1 (k5\_vfunct\_1 k5\_numbers X0 X2))) \end{aligned} \quad (15)$$

Assume the following.

$$k6\_complex1 = np\_1 \quad (16)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k2\_numbers) \Rightarrow (v1\_xcmplx\_0 X0) \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v1\_partfun1 X2 X0) \Rightarrow (v1\_funct\_2 X2 X0 X1)) \end{aligned} \quad (18)$$

### Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\ & ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v2\_csspace \\ & X0) \wedge (l1\_csspace X0)))))))))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge \\ & ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X1 \\ & (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow \\ & (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 \\ & X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 k5\_numbers \\ & (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (r2\_funct\_2 k5\_numbers (u1\_struct\_0 \\ & X0) (k3\_normsp\_1 X0 X1 (k3\_normsp\_1 X0 X2 X3)) (k16\_csspace X0 (k3\_normsp\_1 \\ & X0 X1 X2) X3)))))) \end{aligned}$$