

# t11\_csspace (TMNupbB- WWMeacN3qRhFkhYCgfc52ovvUxyt)

October 27, 2020

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  $l1\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v6\_clvect\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_clvect\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $g1\_clvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_csspace : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_csspace : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_csspace : \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_numbers : \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_clvect\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\
& ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge (l1\_clvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\
& X0))) \Rightarrow (\forall X2. (\neg v1\_xboole\_0 X2) \Rightarrow (\forall X3. (m1\_subset\_1 \\
& X3 X2) \Rightarrow (\forall X4. ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 (k2\_zfmisc\_1 \\
& X2 X2) X2) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X2 X2) X2)))) \Rightarrow (\forall X5. ((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 ( \\
& k2\_zfmisc\_1 k2\_numbers X2) X2) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 ( \\
& k2\_zfmisc\_1 (k2\_zfmisc\_1 k2\_numbers X2) X2)))))) \Rightarrow (((X1 = X2) \wedge ( \\
& X3 = k4\_struct\_0 X0) \wedge ((X4 = k1\_realset1 (u1\_algstr\_0 X0) X1) \wedge ( \\
& X5 = k2\_partfun1 (k2\_zfmisc\_1 k2\_numbers (u1\_struct\_0 X0)) (u1\_struct\_0 \\
& X0) (u1\_clvect\_1 X0) (k2\_zfmisc\_1 k2\_numbers X1)))))) \Rightarrow (m1\_clvect\_1 \\
& (g1\_clvect\_1 X2 X3 X4 X5) X0))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((v1\_funct\_1 X2) \wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (k2\_partfun1 \\ & X0 X1 X2 X3 = k5\_relat\_1 X2 X3) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_clvect\_1 X0) \Rightarrow ((v1\_funct\_1 (u1\_clvect\_1 X0)) \wedge \\ & ((v1\_funct\_2 (u1\_clvect\_1 X0) (k2\_zfmisc\_1 k2\_numbers (u1\_struct\_0 \\ & X0)) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (u1\_clvect\_1 X0) (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 k2\_numbers (u1\_struct\_0 X0)) (u1\_struct\_0 \\ & X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\ & ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 \\ & X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge \\ & (l1\_clvect\_1 X0)))))))))) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))) \Rightarrow ((v1\_funct\_1 (k9\_csspace X0 X1)) \wedge ((v1\_funct\_2 (k9\_csspace \\ & X0 X1) (k2\_zfmisc\_1 k2\_numbers X1) X1) \wedge (m1\_subset\_1 (k9\_csspace \\ & X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 k2\_numbers X1) X1)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\ & ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 \\ & X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge \\ & (l1\_clvect\_1 X0)))))))))) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))) \Rightarrow ((v1\_funct\_1 (k8\_csspace X0 X1)) \wedge ((v1\_funct\_2 (k8\_csspace \\ & X0 X1) (k2\_zfmisc\_1 X1 X1) X1) \wedge (m1\_subset\_1 (k8\_csspace X0 X1) ( \\ & k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X1 X1) X1)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\ & ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 \\ & X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge \\ & (l1\_clvect\_1 X0)))))))))) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))) \Rightarrow (m1\_subset\_1 (k10\_csspace X0 X1) X1) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\ & ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge (l1\_clvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \Rightarrow ((v6\_clvect\_1 X1 X0) \Rightarrow (k9\_csspace X0 X1 = k5\_relat\_1 (u1\_clvect\_1 \\ & X0) (k2\_zfmisc\_1 k2\_numbers X1)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\ & ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge (l1\_clvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \Rightarrow ((v6\_clvect\_1 X1 X0) \Rightarrow (k8\_csspace X0 X1 = k1\_realset1 (u1\_algstr\_0 \\ & X0) X1))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\ & ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge (l1\_clvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \Rightarrow ((v6\_clvect\_1 X1 X0) \Rightarrow ((v1\_xboole\_0 X1) \vee (k10\_csspace X0 \\ & X1 = k4\_struct\_0 X0)))) \end{aligned} \quad (9)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\ & ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge (l1\_clvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \Rightarrow ((v6\_clvect\_1 X1 X0) \Rightarrow ((v1\_xboole\_0 X1) \vee (m1\_clvect\_1 ( \\ & g1\_clvect\_1 X1 (k10\_csspace X0 X1) (k8\_csspace X0 X1) (k9\_csspace \\ & X0 X1) X0)))) \end{aligned}$$