

# t57\_clvect\_2 (TMdhQeYfYnceJEFg- WLP5vqVYewxzArnAw4D)

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  $v2\_csspace : \iota \Rightarrow o$  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  $v3\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v2\_clvect\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k15\_csspace : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k1\_normsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_clvect\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
 & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\
 & ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v2\_csspace \\
 & X0) \wedge (l1\_csspace X0)))))))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 ( \\
 & u1\_struct\_0 X0)) \Rightarrow (k15\_csspace X0 X1 X1 = k6\_numbers))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v2\_clvect\_1 X0) \wedge \\ ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v2\_csspace \\ X0) \wedge (l1\_csspace X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 ( \\ u1\_struct\_0 X0)) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ X2 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow ((v3\_funct\_1 \\ X2) \Rightarrow ((\forall X3.(m2\_subset\_1 X3 k1\_numbers k5\_numbers) \Rightarrow (k1\_normsp\_1 \\ X0 X2 X3 \neq X1)) \vee (k1\_clvect\_2 X0 X2 = X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\ X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \end{aligned} \quad (3)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 \\ X0)) \wedge (((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 \\ X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ X0)))))) \wedge (m1\_subset\_1 X2 k5\_numbers))) \Rightarrow (k1\_normsp\_1 X0 X1 X2 = \\ k1\_funct\_1 X1 X2) \end{aligned} \quad (5)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \quad (6)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_csspace X0) \Rightarrow (l1\_clvect\_1 X0) \quad (8)$$

Assume the following.

$$\forall X0.(l1\_clvect\_1 X0) \Rightarrow (l2\_algstr\_0 X0) \quad (9)$$

Assume the following.

$$\forall X0.(l1\_algstr\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (10)$$

Assume the following.

$$m2\_subset\_1 \ k6\_numbers \ k1\_numbers \ k5\_numbers \quad (11)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 \ X0) \wedge (l1\_struct\_0 \\ & \ X0)) \wedge (((v1\_funct\_1 \ X1) \wedge ((v1\_funct\_2 \ X1 \ k5\_numbers \ (u1\_struct\_0 \\ & \ X0)) \wedge (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ (u1\_struct\_0 \\ & \ X0)))))) \wedge (m1\_subset\_1 \ X2 \ k5\_numbers))) \Rightarrow (m1\_subset\_1 \ (k1\_normsp\_1 \\ & \ X0 \ X1 \ X2) \ (u1\_struct\_0 \ X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 \ X0) \wedge ((v13\_algstr\_0 \ X0) \wedge \\ & \ ((v2\_rlvect\_1 \ X0) \wedge ((v3\_rlvect\_1 \ X0) \wedge ((v4\_rlvect\_1 \ X0) \wedge ((v2\_clvect\_1 \\ & \ X0) \wedge ((v3\_clvect\_1 \ X0) \wedge ((v4\_clvect\_1 \ X0) \wedge ((v5\_clvect\_1 \ X0) \wedge \\ & \ ((v2\_csspace \ X0) \wedge (l1\_csspace \ X0)))))))))) \wedge ((v1\_funct\_1 \ X1) \wedge \\ & \ ((v1\_funct\_2 \ X1 \ k5\_numbers \ (u1\_struct\_0 \ X0)) \wedge (m1\_subset\_1 \ X1 \\ & \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ (u1\_struct\_0 \ X0)))))) \Rightarrow \\ & \ (m1\_subset\_1 \ (k1\_clvect\_2 \ X0 \ X1) \ (u1\_struct\_0 \ X0)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. (((\neg v2\_struct\_0 \ X0) \wedge ((v13\_algstr\_0 \ X0) \wedge ((v2\_rlvect\_1 \\ & \ X0) \wedge ((v3\_rlvect\_1 \ X0) \wedge ((v4\_rlvect\_1 \ X0) \wedge ((v2\_clvect\_1 \ X0) \wedge \\ & \ ((v3\_clvect\_1 \ X0) \wedge ((v4\_clvect\_1 \ X0) \wedge ((v5\_clvect\_1 \ X0) \wedge ((v2\_csspace \\ & \ X0) \wedge (l1\_csspace \ X0)))))))))) \Rightarrow (\forall X1. ((v1\_funct\_1 \ X1) \wedge \\ & \ ((v1\_funct\_2 \ X1 \ k5\_numbers \ (u1\_struct\_0 \ X0)) \wedge (m1\_subset\_1 \ X1 \\ & \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ (u1\_struct\_0 \ X0)))))) \Rightarrow \\ & \ ((v2\_clvect\_2 \ X1 \ X0) \Leftrightarrow (\forall X2. (m1\_subset\_1 \ X2 \ k1\_numbers) \Rightarrow \\ & \ (\neg(\neg r1\_xxreal\_0 \ X2 \ k6\_numbers) \wedge (\forall X3. (m2\_subset\_1 \ X3 \ k1\_numbers \\ & \ k5\_numbers) \Rightarrow (\exists X4. (m2\_subset\_1 \ X4 \ k1\_numbers \ k5\_numbers) \wedge \\ & \ (\exists X5. (m2\_subset\_1 \ X5 \ k1\_numbers \ k5\_numbers) \wedge ((r1\_xxreal\_0 \\ & \ X3 \ X4) \wedge ((r1\_xxreal\_0 \ X3 \ X5) \wedge (r1\_xxreal\_0 \ X2 \ (k15\_csspace \ X0 \ (k1\_normsp\_1 \\ & \ X0 \ X1 \ X4) \ (k1\_normsp\_1 \ X0 \ X1 \ X5)))))))))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0. (v1\_xboole\_0 \ X0) \Rightarrow (\forall X1. (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0)) \Rightarrow (v1\_xboole\_0 \ X1)) \quad (16)$$

**Theorem 1**

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