# t11_vectsp11 (TMP-DuMa3FPEVvtjgEVrPhpAZ89kJwK6mvL1)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v6\_struct\_0 : \iota \Rightarrow o$ be given. Let $v13\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v33\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v3\_group\_1 : \iota \Rightarrow o$ be given. Let $v5\_group\_1 : \iota \Rightarrow o$ be given. Let $v4\_vectsp\_1 : \iota \Rightarrow o$ be given. Let $v5\_vectsp\_1 : \iota \Rightarrow o$ 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 $l6\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v7\_struct\_0 : \iota \Rightarrow o$ be given. Let $v8\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v9\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v11\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_vectsp11 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $m1\_vectsp11 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_group\_1 : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $m2\_vectsp11 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $k4\_relat\_1 : \iota \Rightarrow \iota$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_partfun1 : \iota \Rightarrow \iota$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k4\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l4\_algstr\_0 : \iota \Rightarrow o$ be given. Let $k5\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_mod\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ 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 $l2\_struct\_0 : \iota \Rightarrow o$ be given. Let $l1\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1) \Rightarrow ((v1\_xboole\_0\ X1) \vee (X0 \in X1)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1) \wedge (v1\_funct\_1\ X1)) \Rightarrow ((X1 = k4\_relat\_1\ X0) \Leftrightarrow ((k9\_xtuple\_0\ X1 = X0) \wedge (\forall X2.(X2 \in X0) \Rightarrow (k1\_funct\_1\ X1\ X2 = X2)))) \tag{2}$$

Assume the following.

$$\forall X0.k6\_partfun1\ X0 = k4\_relat\_1\ X0 \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge (((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge(m1\_subset\_1\ X3\ X0)))\Rightarrow(k3\_funct\_2\ X0\ X1\ X2\ X3 = k1\_funct\_1\ X2\ X3) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v6\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v33\_algstr\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v5\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v7\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v8\_vectsp\_1\ X1\ X0)\wedge((v9\_vectsp\_1\ X1\ X0)\wedge((v10\_vectsp\_1\ X1\ X0)\wedge((v11\_vectsp\_1\ X1\ X0)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))))))))))\Rightarrow((v1\_vectsp11\ (k3\_struct\_0\ X1)\ X0\ X1)\wedge(\exists X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X1))\wedge((X2\neq k4\_struct\_0\ X1)\wedge(k3\_funct\_2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ (k3\_struct\_0\ X1)\ X2 = k4\_vectsp\_1\ X0\ X1\ (k1\_group\_1\ X0)\ X2))))) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge(l4\_algstr\_0\ X0)))\Rightarrow(k1\_group\_1\ X0 = k5\_struct\_0\ X0) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))\wedge((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v8\_vectsp\_1\ X1\ X0)\wedge((v9\_vectsp\_1\ X1\ X0)\wedge((v10\_vectsp\_1\ X1\ X0)\wedge((v11\_vectsp\_1\ X1\ X0)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))))))))))\Rightarrow((v1\_funct\_1\ (k3\_struct\_0\ X1))\wedge((v1\_funct\_2\ (k3\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))\wedge(v1\_mod\_2\ (k3\_struct\_0\ X1)\ X0\ X1\ X1))) \tag{7}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\wedge(((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))))))))\Rightarrow(\forall X3.(m1\_vectsp11\ X3\ X0\ X1\ X2)\Rightarrow(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)))) \tag{9}$$

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.

$$\forall X0.(l2\_struct\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{13}$$

Assume the following.

$$\forall X0.(l2\_algstr\_0\ X0)\Rightarrow((l2\_struct\_0\ X0)\wedge(l1\_algstr\_0\ X0)) \tag{14}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(\forall X1.(l1\_vectsp\_1\ X1\ X0)\Rightarrow(l2\_algstr\_0\ X1)) \tag{15}$$

Assume the following.

$$\forall X0.(v1\_partfun1\ (k6\_partfun1\ X0)\ X0)\wedge(m1\_subset\_1\ (k6\_partfun1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0))) \tag{16}$$

Assume the following.

$$\forall X0.(l3\_struct\_0\ X0)\Rightarrow(m1\_subset\_1\ (k5\_struct\_0\ X0)\ (u1\_struct\_0\ X0)) \tag{17}$$

Assume the following.

$$\forall X0.v1\_relat\_1\ (k4\_relat\_1\ X0) \tag{18}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(k3\_struct\_0\ X0 = k6\_partfun1\ (u1\_struct\_0\ X0)) \tag{19}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))))))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(((v1\_vectsp11\ X2\ X0\ X1)\wedge(m1\_vectsp11\ X3\ X0\ X1\ X2))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))\Rightarrow((m2\_vectsp11\ X4\ X0\ X1\ X2\ X3)\Leftrightarrow(k3\_funct\_2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ X2\ X4 = k4\_vectsp\_1\ X0\ X1\ X3\ X4)))))))) \tag{20}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))))))\Rightarrow((v1\_vectsp11\ X2\ X0\ X1)\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow((m1\_vectsp11\ X3\ X0\ X1\ X2)\Leftrightarrow(\exists X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))\wedge((X4\neq k4\_struct\_0\ X1)\wedge(k3\_funct\_2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ X2\ X4 = k4\_vectsp\_1\ X0\ X1\ X3\ X4)))))))) \tag{21}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow((v11\_vectsp\_1\ X1\ X0)\Leftrightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X1))\Rightarrow(k4\_vectsp\_1\ X0\ X1\ (k5\_struct\_0\ X0)\ X2 = X2)))) \tag{22}$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v6\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v33\_algstr\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v5\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v7\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v8\_vectsp\_1\ X1\ X0)\wedge((v9\_vectsp\_1\ X1\ X0)\wedge((v10\_vectsp\_1\ X1\ X0)\wedge((v11\_vectsp\_1\ X1\ X0)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))))))))))\Rightarrow((v1\_vectsp11\ (k3\_struct\_0\ X1)\ X0\ X1)\wedge((m1\_vectsp11\ (k1\_group\_1\ X0)\ X0\ X1\ (k3\_struct\_0\ X1))\wedge(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X1))\Rightarrow(m2\_vectsp11\ X2\ X0\ X1\ (k3\_struct\_0\ X1)\ (k1\_group\_1\ X0)))))))$$