

# t27\_vectsp\_9 (TMFWDiyFSFAKRodXbUPi- jye3TL6HFdwC7vX)

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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  $v8\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $v1\_matrlin : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_vectsp\_9 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_vectsp\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_vectsp\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_vectsp\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_vectsp\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $g1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $u2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((\neg v6\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
& X0) \wedge ((v33\_algstr\_0 X0) \wedge ((v3\_group\_1 X0) \wedge ((v5\_group\_1 X0) \wedge ( \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 \\
& X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v8\_vectsp\_1 X1 X0) \wedge \\
& ((v9\_vectsp\_1 X1 X0) \wedge ((v10\_vectsp\_1 X1 X0) \wedge ((v11\_vectsp\_1 X1 \\
& X0) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge \\
& ((v1\_matrlin X1 X0) \wedge (l1\_vectsp\_1 X1 X0)))))))))) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow ((v1\_vectsp\_7 \\
& X2 X0 X1) \Rightarrow (k1\_card\_1 X2 = k1\_vectsp\_9 X0 (k1\_vectsp\_7 X0 X1 X2))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(\neg v6\_struct\_0 X0)\wedge \\
& ((v13\_algstr\_0 X0)\wedge((v33\_algstr\_0 X0)\wedge((v3\_group\_1 X0)\wedge((v5\_group\_1 \\
& X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge \\
& ((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge(l6\_algstr\_0 X0))))))))))\wedge \\
& ((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v8\_vectsp\_1 X1 X0)\wedge \\
& ((v9\_vectsp\_1 X1 X0)\wedge((v10\_vectsp\_1 X1 X0)\wedge((v11\_vectsp\_1 X1 \\
& X0)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge \\
& (l1\_vectsp\_1 X1 X0))))))))))\Rightarrow(\exists X2.m1\_vectsp\_7 X2 X0 X1)
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(\neg v6\_struct\_0 X0)\wedge \\
& ((v13\_algstr\_0 X0)\wedge((v33\_algstr\_0 X0)\wedge((v3\_group\_1 X0)\wedge((v5\_group\_1 \\
& X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge \\
& ((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge(l6\_algstr\_0 X0))))))))))\wedge \\
& ((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v8\_vectsp\_1 X1 X0)\wedge \\
& ((v9\_vectsp\_1 X1 X0)\wedge((v10\_vectsp\_1 X1 X0)\wedge((v11\_vectsp\_1 X1 \\
& X0)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge \\
& (l1\_vectsp\_1 X1 X0))))))))))\Rightarrow(\forall X2.(m1\_vectsp\_7 X2 X0 \\
& X1)\Rightarrow(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X1))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(\neg v6\_struct\_0 X0)\wedge \\
& ((v13\_algstr\_0 X0)\wedge((v33\_algstr\_0 X0)\wedge((v3\_group\_1 X0)\wedge((v5\_group\_1 \\
& X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge \\
& ((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge(l6\_algstr\_0 X0))))))))))\wedge \\
& ((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v8\_vectsp\_1 X1 X0)\wedge \\
& ((v9\_vectsp\_1 X1 X0)\wedge((v10\_vectsp\_1 X1 X0)\wedge((v11\_vectsp\_1 X1 \\
& X0)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge \\
& (l1\_vectsp\_1 X1 X0))))))))))\Rightarrow(v7\_ordinal1 (k1\_vectsp\_9 X0 X1))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0)\wedge((v13\_algstr\_0 X0)\wedge((v3\_group\_1 \\
& X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge \\
& ((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge(l6\_algstr\_0 X0))))))))\Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v8\_vectsp\_1 \\
& X1 X0)\wedge((v9\_vectsp\_1 X1 X0)\wedge((v10\_vectsp\_1 X1 X0)\wedge((v11\_vectsp\_1 \\
& X1 X0)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge \\
& (l1\_vectsp\_1 X1 X0))))))))))\Rightarrow(k2\_vectsp\_4 X0 X1 = g1\_vectsp\_1 \\
& X0 (u1\_struct\_0 X1) (u1\_algstr\_0 X1) (u2\_struct\_0 X1) (u1\_vectsp\_1 \\
& X0 X1))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v6\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
& X0) \wedge ((v33\_algstr\_0 X0) \wedge ((v3\_group\_1 X0) \wedge ((v5\_group\_1 X0) \wedge \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 \\
& X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v8\_vectsp\_1 X1 X0) \wedge \\
& ((v9\_vectsp\_1 X1 X0) \wedge ((v10\_vectsp\_1 X1 X0) \wedge ((v11\_vectsp\_1 X1 \\
& X0) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge \\
& (l1\_vectsp\_1 X1 X0)))))))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X1))) \Rightarrow ((m1\_vectsp\_7 X2 X0 X1) \Leftrightarrow ((v1\_vectsp\_7 X2 X0 \\
& X1) \wedge (k1\_vectsp\_7 X0 X1 X2 = g1\_vectsp\_1 X0 (u1\_struct\_0 X1) (u1\_algstr\_0 \\
& X1) (u2\_struct\_0 X1) (u1\_vectsp\_1 X0 X1))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v6\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
& X0) \wedge ((v33\_algstr\_0 X0) \wedge ((v3\_group\_1 X0) \wedge ((v5\_group\_1 X0) \wedge \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 \\
& X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v8\_vectsp\_1 X1 X0) \wedge \\
& ((v9\_vectsp\_1 X1 X0) \wedge ((v10\_vectsp\_1 X1 X0) \wedge ((v11\_vectsp\_1 X1 \\
& X0) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge \\
& (l1\_vectsp\_1 X1 X0)))))))))) \Rightarrow ((v1\_matrlin X1 X0) \Rightarrow (\forall X2. \\
& (v7\_ordinal1 X2) \Rightarrow ((X2 = k1\_vectsp\_9 X0 X1) \Leftrightarrow (\forall X3.(m1\_vectsp\_7 \\
& X3 X0 X1) \Rightarrow (X2 = k1\_card\_1 X3))))))
\end{aligned} \tag{7}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v6\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
& X0) \wedge ((v33\_algstr\_0 X0) \wedge ((v3\_group\_1 X0) \wedge ((v5\_group\_1 X0) \wedge \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 \\
& X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v8\_vectsp\_1 X1 X0) \wedge \\
& ((v9\_vectsp\_1 X1 X0) \wedge ((v10\_vectsp\_1 X1 X0) \wedge ((v11\_vectsp\_1 X1 \\
& X0) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge \\
& ((v1\_matrlin X1 X0) \wedge (l1\_vectsp\_1 X1 X0)))))))))) \Rightarrow (k1\_vectsp\_9 \\
& X0 X1 = k1\_vectsp\_9 X0 (k2\_vectsp\_4 X0 X1))
\end{aligned}$$