

## t29\_vectsp\_5

(TMcsdpTsnJDXBMKSdJLLrve6SSST1jV8xjQ)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  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  $l1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_vectsp\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_vectsp\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_vectsp\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow \\
 & (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v8\_vectsp\_1 X1 X0) \wedge ((v9\_vectsp\_1 X1 X0) \wedge ((v10\_vectsp\_1 X1 X0) \wedge ((v11\_vectsp\_1 X1 X0) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge (l1\_vectsp\_1 X1 X0)))))))))) \Rightarrow (\forall X2.((v7\_vectsp\_1 X2 X0) \wedge (m1\_vectsp\_4 X2 X0 X1)) \Rightarrow (\forall X3.((v7\_vectsp\_1 X3 X0) \wedge (m1\_vectsp\_4 X3 X0 X1)) \Rightarrow ((u1\_struct\_0 X2 = u1\_struct\_0 X3) \Rightarrow (X2 = X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow \\
 & (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v8\_vectsp\_1 X1 X0) \wedge ((v9\_vectsp\_1 X1 X0) \wedge ((v10\_vectsp\_1 X1 X0) \wedge ((v11\_vectsp\_1 X1 X0) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge (l1\_vectsp\_1 X1 X0)))))))))) \Rightarrow (\forall X2.(m1\_vectsp\_4 X2 X0 X1) \Rightarrow (\forall X3.(m1\_vectsp\_4 X3 X0 X1) \Rightarrow (\forall X4.(m1\_vectsp\_4 X4 X0 X1) \Rightarrow ((m1\_vectsp\_4 X2 X0 X3) \Rightarrow (u1\_struct\_0 (k1\_vectsp\_5 X0 X1 X3 (k2\_vectsp\_5 X0 X1 X2 X4)) = u1\_struct\_0 (k2\_vectsp\_5 X0 X1 (k1\_vectsp\_5 X0 X1 X2 X3) (k1\_vectsp\_5 X0 X1 X3 X4))))))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\ & X0)\wedge((v13\_algstr\_0 X0)\wedge((v3\_group\_1 X0)\wedge((v4\_vectsp\_1 X0)\wedge \\ & ((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 \\ & X0)\wedge(l6\_algstr\_0 X0))))))))\wedge(((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 \\ & X1)\wedge((v8\_vectsp\_1 X1 X0)\wedge((v9\_vectsp\_1 X1 X0)\wedge((v10\_vectsp\_1 \\ & X1 X0)\wedge((v11\_vectsp\_1 X1 X0)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 \\ & X1)\wedge((v4\_rlvect\_1 X1)\wedge(l1\_vectsp\_1 X1 X0))))))))\wedge((m1\_vectsp\_4 \\ & X2 X0 X1)\wedge(m1\_vectsp\_4 X3 X0 X1)))\Rightarrow((v7\_vectsp\_1 (k2\_vectsp\_5 \\ & X0 X1 X2 X3) X0)\wedge(m1\_vectsp\_4 (k2\_vectsp\_5 X0 X1 X2 X3) X0 X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\ & X0)\wedge((v13\_algstr\_0 X0)\wedge((v3\_group\_1 X0)\wedge((v4\_vectsp\_1 X0)\wedge \\ & ((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 \\ & X0)\wedge(l6\_algstr\_0 X0))))))))\wedge(((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 \\ & X1)\wedge((v8\_vectsp\_1 X1 X0)\wedge((v9\_vectsp\_1 X1 X0)\wedge((v10\_vectsp\_1 \\ & X1 X0)\wedge((v11\_vectsp\_1 X1 X0)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 \\ & X1)\wedge((v4\_rlvect\_1 X1)\wedge(l1\_vectsp\_1 X1 X0))))))))\wedge((m1\_vectsp\_4 \\ & X2 X0 X1)\wedge(m1\_vectsp\_4 X3 X0 X1)))\Rightarrow((v7\_vectsp\_1 (k1\_vectsp\_5 \\ & X0 X1 X2 X3) X0)\wedge(m1\_vectsp\_4 (k1\_vectsp\_5 X0 X1 X2 X3) X0 X1)) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v13\_algstr\_0 X0)\wedge((v3\_group\_1 \\ & X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge \\ & ((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge(l6\_algstr\_0 X0))))))))\Rightarrow \\ & (\forall X1.((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v8\_vectsp\_1 \\ & X1 X0)\wedge((v9\_vectsp\_1 X1 X0)\wedge((v10\_vectsp\_1 X1 X0)\wedge((v11\_vectsp\_1 \\ & X1 X0)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge \\ & (l1\_vectsp\_1 X1 X0))))))))\Rightarrow(\forall X2.(m1\_vectsp\_4 X2 X0 X1)\Rightarrow \\ & (\forall X3.(m1\_vectsp\_4 X3 X0 X1)\Rightarrow(\forall X4.(m1\_vectsp\_4 X4 \\ & X0 X1)\Rightarrow((m1\_vectsp\_4 X2 X0 X3)\Rightarrow(k1\_vectsp\_5 X0 X1 X3 (k2\_vectsp\_5 \\ & X0 X1 X2 X4) = k2\_vectsp\_5 X0 X1 (k1\_vectsp\_5 X0 X1 X2 X3) (k1\_vectsp\_5 \\ & X0 X1 X3 X4)))))) \end{aligned}$$