

## t29\_rmod\_3

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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  $v4\_vectsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_vectsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_rmod\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_rmod\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_rmod\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_vectsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 \\
 & X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge \\
 & ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))) \Rightarrow \\
 & (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
 & X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_2 X1 X0) \wedge \\
 & (l1\_vectsp\_2 X1 X0)))))))) \Rightarrow (\forall X2. (m1\_rmod\_2 X2 X0 X1) \Rightarrow (\forall X3. \\
 & (m1\_rmod\_2 X3 X0 X1) \Rightarrow ((r1\_tarski (u1\_struct\_0 X2) (u1\_struct\_0 \\
 & X3)) \Rightarrow (m1\_rmod\_2 X2 X0 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 \\
 & X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge \\
 & ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))) \Rightarrow \\
 & (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
 & X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_2 X1 X0) \wedge \\
 & (l1\_vectsp\_2 X1 X0)))))))) \Rightarrow (\forall X2. (m1\_rmod\_2 X2 X0 X1) \Rightarrow (\forall X3. \\
 & (m1\_rmod\_2 X3 X0 X1) \Rightarrow (\forall X4. (m1\_rmod\_2 X4 X0 X1) \Rightarrow (r1\_tarski \\
 & (u1\_struct\_0 (k1\_rmod\_3 X0 X1 X2 (k2\_rmod\_3 X0 X1 X3 X4)) (u1\_struct\_0 \\
 & (k2\_rmod\_3 X0 X1 (k1\_rmod\_3 X0 X1 X3 X2) (k1\_rmod\_3 X0 X1 X2 X4))))))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\
& X0)\wedge((v13\_algstr\_0 X0)\wedge((v3\_group\_1 X0)\wedge((v4\_vectsp\_1 X0)\wedge \\
& ((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 \\
& X0)\wedge(l6\_algstr\_0 X0))))))))\wedge(((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 \\
& X1)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge \\
& ((v4\_vectsp\_2 X1 X0)\wedge(l1\_vectsp\_2 X1 X0))))))\wedge((m1\_rmod\_2 X2 \\
& X0 X1)\wedge(m1\_rmod\_2 X3 X0 X1)))\Rightarrow((v2\_vectsp\_2 (k2\_rmod\_3 X0 X1 X2 \\
& X3) X0)\wedge(m1\_rmod\_2 (k2\_rmod\_3 X0 X1 X2 X3) X0 X1))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\
& X0)\wedge((v13\_algstr\_0 X0)\wedge((v3\_group\_1 X0)\wedge((v4\_vectsp\_1 X0)\wedge \\
& ((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 \\
& X0)\wedge(l6\_algstr\_0 X0))))))))\wedge(((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 \\
& X1)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge \\
& ((v4\_vectsp\_2 X1 X0)\wedge(l1\_vectsp\_2 X1 X0))))))\wedge((m1\_rmod\_2 X2 \\
& X0 X1)\wedge(m1\_rmod\_2 X3 X0 X1)))\Rightarrow((v2\_vectsp\_2 (k1\_rmod\_3 X0 X1 X2 \\
& X3) X0)\wedge(m1\_rmod\_2 (k1\_rmod\_3 X0 X1 X2 X3) X0 X1))
\end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0)\wedge((v13\_algstr\_0 X0)\wedge((v3\_group\_1 \\
& X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge((v2\_rlvect\_1 X0)\wedge \\
& ((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge(l6\_algstr\_0 X0))))))))\Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v2\_rlvect\_1 \\
& X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge((v4\_vectsp\_2 X1 X0)\wedge \\
& (l1\_vectsp\_2 X1 X0))))))\Rightarrow(\forall X2.(m1\_rmod\_2 X2 X0 X1)\Rightarrow(\forall X3. \\
& (m1\_rmod\_2 X3 X0 X1)\Rightarrow(\forall X4.(m1\_rmod\_2 X4 X0 X1)\Rightarrow(m1\_rmod\_2 \\
& (k1\_rmod\_3 X0 X1 X2 (k2\_rmod\_3 X0 X1 X3 X4) X0 (k2\_rmod\_3 X0 X1 (k1\_rmod\_3 \\
& X0 X1 X3 X2) (k1\_rmod\_3 X0 X1 X2 X4))))))
\end{aligned}$$