

## t50\_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  $g3\_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_rmod\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_rmod\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_rmod\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v10\_lattices : \iota \Rightarrow o$  be given. Let  $v15\_lattices : \iota \Rightarrow o$  be given. Let  $l3\_lattices : \iota \Rightarrow o$  be given. Let  $v14\_lattices : \iota \Rightarrow o$  be given. Let  $v13\_lattices : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 \\
 & X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge \\
 & ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))) \Rightarrow \\
 & (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
 & X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_2 X1 X0) \wedge \\
 & (l1\_vectsp\_2 X1 X0)))))))) \Rightarrow ((\neg v2\_struct\_0 (g3\_lattices (k3\_rmod\_3 \\
 & X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge ((v10\_lattices (g3\_lattices \\
 & (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge ((v14\_lattices \\
 & (g3\_lattices (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge \\
 & (l3\_lattices (g3\_lattices (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) ( \\
 & k6\_rmod\_3 X0 X1))))))
 \end{aligned}
 \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 \\
& X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge \\
& ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0))))))))) \Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_2 X1 X0) \wedge \\
& (l1\_vectsp\_2 X1 X0))))))))) \Rightarrow ((\neg v2\_struct\_0 (g3\_lattices (k3\_rmod\_3 \\
& X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge ((v10\_lattices (g3\_lattices \\
& (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge ((v13\_lattices \\
& (g3\_lattices (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge \\
& (l3\_lattices (g3\_lattices (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) ( \\
& k6\_rmod\_3 X0 X1)))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l3\_lattices X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge ((v13\_lattices X0) \wedge (v14\_lattices X0))) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v15\_lattices X0))) \tag{3}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 \\
& X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge \\
& ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0))))))))) \Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_2 X1 X0) \wedge \\
& (l1\_vectsp\_2 X1 X0))))))))) \Rightarrow ((\neg v2\_struct\_0 (g3\_lattices (k3\_rmod\_3 \\
& X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge ((v10\_lattices (g3\_lattices \\
& (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge ((v15\_lattices \\
& (g3\_lattices (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) (k6\_rmod\_3 X0 X1))) \wedge \\
& (l3\_lattices (g3\_lattices (k3\_rmod\_3 X0 X1) (k5\_rmod\_3 X0 X1) ( \\
& k6\_rmod\_3 X0 X1)))))))))
\end{aligned}$$