

## t19\_rlvect\_5

(TMQH8qNZArwBNAjfnCMihvXUBUDiT8S1cL5)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  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  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $m1\_rlsub\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_rlvect\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $r1\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_rlvect\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_rlvect\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_rlvect\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_rlvect\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_rlvect\_1 : \iota \Rightarrow o$  be given. Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 X0)))))))))) \Rightarrow (\forall X1. (m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2. (m1\_rlsub\_1 X2 X0) \Rightarrow ((r1\_tarski (u1\_struct\_0 X1) (u1\_struct\_0 X2)) \Rightarrow (m1\_rlsub\_1 X1 X2)))))) \quad (2) \end{aligned}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X2)) \Rightarrow (r1\_tarski X0 X2) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge \\ & ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v5\_rlvect\_1 \\ & X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge ((v8\_rlvect\_1 X1) \wedge \\ & (l1\_rlvect\_1 X1)))))))))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X1))) \Rightarrow ((r1\_struct\_0 (k1\_rlvect\_3 X1 X2) X0) \Leftrightarrow (\exists X3. \\ & (m2\_rlvect\_2 X3 X1 X2) \wedge (X0 = k6\_rlvect\_2 X1 X3)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1. (m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2. (m1\_rlvect\_2 \\ & X2 X0) \Rightarrow (\neg(r1\_tarski (k3\_rlvect\_2 X0 X2) (u1\_struct\_0 X1)) \wedge (\forall X3. \\ & (m1\_rlvect\_2 X3 X1) \Rightarrow (\neg(k3\_rlvect\_2 X1 X3 = k3\_rlvect\_2 X0 X2) \wedge ( \\ & k6\_rlvect\_2 X1 X3 = k6\_rlvect\_2 X0 X2)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l2\_algstr\_0 X0)) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\forall X2. \\ & (m2\_rlvect\_2 X2 X0 X1) \Rightarrow (m1\_rlvect\_2 X2 X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1. (m1\_rlsub\_1 X1 X0) \Rightarrow ((\neg v2\_struct\_0 \\ & X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge \\ & ((v4\_rlvect\_1 X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 \\ & X1) \wedge ((v8\_rlvect\_1 X1) \wedge (l1\_rlvect\_1 X1)))))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0. (l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (9)$$

Assume the following.

$$\forall X0. (l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0. (l1\_rlvect\_1 X0) \Rightarrow (l2\_algstr\_0 X0) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (v13\_algstr\_0 X0) \wedge \\ & ((v2\_rlvect\_1 X0) \wedge (v3\_rlvect\_1 X0) \wedge (v4\_rlvect\_1 X0) \wedge (v5\_rlvect\_1 \\ & X0) \wedge (v6\_rlvect\_1 X0) \wedge (v7\_rlvect\_1 X0) \wedge (v8\_rlvect\_1 X0) \wedge \\ & (l1\_rlvect\_1 X0)))))) \wedge (m1\_rlvect\_2 X1 X0) \Rightarrow (m1\_subset\_1 \\ & (k6\_rlvect\_2 X0 X1) (u1\_struct\_0 X0)) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (v13\_algstr\_0 X0) \wedge \\ & ((v2\_rlvect\_1 X0) \wedge (v3\_rlvect\_1 X0) \wedge (v4\_rlvect\_1 X0) \wedge (v5\_rlvect\_1 \\ & X0) \wedge (v6\_rlvect\_1 X0) \wedge (v7\_rlvect\_1 X0) \wedge (v8\_rlvect\_1 X0) \wedge \\ & (l1\_rlvect\_1 X0)))))) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \Rightarrow ((v1\_rlvect\_1 (k1\_rlvect\_3 X0 X1)) \wedge (m1\_rlsub\_1 (k1\_rlvect\_3 \\ & X0 X1) X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l2\_algstr\_0 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2. \\ & (m1\_rlvect\_2 X2 X0) \Rightarrow ((m2\_rlvect\_2 X2 X0 X1) \Leftrightarrow (r1\_tarski (k3\_rlvect\_2 \\ & X0 X2) X1)))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0. (l1\_struct\_0 X0) \Rightarrow (\forall X1. (r1\_struct\_0 X0 X1) \Leftrightarrow (X1 \in u1\_struct\_0 X0)) \quad (15)$$

Assume the following.

$$\forall X0. \forall X1. (r1\_tarski X0 X1) \Leftrightarrow (\forall X2. (X2 \in X0) \Rightarrow (X2 \in X1)) \quad (16)$$

### Theorem 1

$$\begin{aligned} & \forall X0. (((\neg v2\_struct\_0 X0) \wedge (v13\_algstr\_0 X0) \wedge (v2\_rlvect\_1 \\ & X0) \wedge (v3\_rlvect\_1 X0) \wedge (v4\_rlvect\_1 X0) \wedge (v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge (v7\_rlvect\_1 X0) \wedge (v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))) \Rightarrow (\forall X1. (m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow ((r1\_tarski X2 (u1\_struct\_0 \\ & X1)) \Rightarrow (m1\_rlsub\_1 (k1\_rlvect\_3 X0 X2) X1)))) \end{aligned}$$