

## t23\_rusub\_1

(TMPviaYsCzahZUqQhR6zLPZ6JBzC4svsEqy)

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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  $v2\_bhsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_bhsp\_1 : \iota \Rightarrow o$  be given. Let  $m1\_rusub\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_rlvect\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $u1\_bhsp\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhsp\_1 \\ & X0) \wedge (l1\_bhsp\_1 X0)))))))))) \Rightarrow (\forall X1. (m1\_rusub\_1 X1 X0) \Rightarrow \\ & (\forall X2. (m1\_rusub\_1 X2 X0) \Rightarrow ((r1\_tarski (u1\_struct\_0 X1) ( \\ & u1\_struct\_0 X2)) \Rightarrow (m1\_rusub\_1 X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhsp\_1 \\ & X0) \wedge (l1\_bhsp\_1 X0)))))))))) \Rightarrow (\forall X1. (m1\_rusub\_1 X1 X0) \Rightarrow \\ & ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge (( \\ & v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 \\ & X1) \wedge ((v7\_rlvect\_1 X1) \wedge ((v8\_rlvect\_1 X1) \wedge ((v2\_bhsp\_1 X1) \wedge (l1\_bhsp\_1 \\ & X1)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (4)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l1\_rlvect\_1 X0) \Rightarrow (l2\_algstr\_0 X0) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_bhsp\_1 X0) \Rightarrow (l1\_rlvect\_1 X0) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (\forall X1.(r1\_struct\_0 X0 X1) \Leftrightarrow (X1 \in u1\_struct\_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1) \Leftrightarrow (\forall X2.(X2 \in X0) \Rightarrow (X2 \in X1)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhsp\_1 \\ & X0) \wedge (l1\_bhsp\_1 X0)))))))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge \\ & ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 \\ & X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge \\ & ((v8\_rlvect\_1 X1) \wedge ((v2\_bhsp\_1 X1) \wedge (l1\_bhsp\_1 X1)))))))))) \Rightarrow \\ & ((m1\_rusub\_1 X1 X0) \Leftrightarrow ((r1\_tarski (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0)) \wedge ((k4\_struct\_0 X1 = k4\_struct\_0 X0) \wedge ((u1\_algstr\_0 X1 = k1\_realset1 \\ & (u1\_algstr\_0 X0) (u1\_struct\_0 X1)) \wedge ((u1\_rlvect\_1 X1 = k5\_relat\_1 \\ & (u1\_rlvect\_1 X0) (k2\_zfmisc\_1 k1\_numbers (u1\_struct\_0 X1))) \wedge \\ & (u1\_bhsp\_1 X1 = k1\_realset1 (u1\_bhsp\_1 X0) (u1\_struct\_0 X1))))))))) \end{aligned} \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhsp\_1 \\ & X0) \wedge (l1\_bhsp\_1 X0)))))))))) \Rightarrow (\forall X1.(m1\_rusub\_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1\_rusub\_1 X2 X0) \Rightarrow ((\forall X3.(m1\_subset\_1 X3 ( \\ & u1\_struct\_0 X0)) \Rightarrow ((r1\_struct\_0 X1 X3) \Rightarrow (r1\_struct\_0 X2 X3))) \Rightarrow \\ & (m1\_rusub\_1 X1 X2)))) \end{aligned}$$