

t15\_rusub\_2 (TM-  
NgJhCV1K8fbJLs7iLMs8Uo9a5T1mjwmUY)

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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  $k2\_rusub\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_bhsp\_1 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $g1\_bhsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_rlvect\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_bhsp\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. k3\_xboole\_0 (k3\_xboole\_0 X0 \\ & X1) X2 = k3\_xboole\_0 X0 (k3\_xboole\_0 X1 X2) \end{aligned} \quad (1)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\ & X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge \\ & ((v5\_rlvect\_1 X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 \\ & X0) \wedge ((v2\_bhsp\_1 X0) \wedge (l1\_bhsp\_1 X0)))))))))) \wedge ((m1\_rusub\_1 \\ & X1 X0) \wedge (m1\_rusub\_1 X2 X0))) \Rightarrow ((v1\_bhsp\_1 (k2\_rusub\_2 X0 X1 X2)) \wedge \\ & (m1\_rusub\_1 (k2\_rusub\_2 X0 X1 X2) X0)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhspl\_1 \\
& X0) \wedge (l1\_bhspl\_1 X0)))))))))) \Rightarrow (\forall X1.(m1\_rusub\_1 X1 X0) \Rightarrow \\
& (\forall X2.(m1\_rusub\_1 X2 X0) \Rightarrow (\forall X3.((v1\_bhspl\_1 X3) \wedge ( \\
& m1\_rusub\_1 X3 X0) \Rightarrow ((X3 = k2\_rusub\_2 X0 X1 X2) \Leftrightarrow (u1\_struct\_0 X3 = \\
& k3\_xboole\_0 (u1\_struct\_0 X1) (u1\_struct\_0 X2))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_bhspl\_1 X0) \Rightarrow ((v1\_bhspl\_1 X0) \Rightarrow (X0 = g1\_bhspl\_1 (u1\_struct\_0 \\
& X0) (u2\_struct\_0 X0) (u1\_algstr\_0 X0) (u1\_rlvect\_1 X0) (u1\_bhspl\_1 \\
& X0)))
\end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhspl\_1 \\
& X0) \wedge (l1\_bhspl\_1 X0)))))))))) \Rightarrow (\forall X1.(m1\_rusub\_1 X1 X0) \Rightarrow \\
& (\forall X2.(m1\_rusub\_1 X2 X0) \Rightarrow (\forall X3.(m1\_rusub\_1 X3 X0) \Rightarrow \\
& (k2\_rusub\_2 X0 X1 (k2\_rusub\_2 X0 X2 X3) = k2\_rusub\_2 X0 (k2\_rusub\_2 \\
& X0 X1 X2) X3)))
\end{aligned}$$