

# t10\_rsspace4 (TMXvT- iNm6gVEwTmYWSAvov3EHvwsJpQVoZm)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. 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  $v3\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v4\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v2\_normsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_normsp\_1 : \iota \Rightarrow o$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_rsspace4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_rlsub\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_rsspace4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_lopban\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_rlsub\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $g1\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_rsspace : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_rsspace : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_rsspace : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_normsp\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\
 & ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 \\
 & X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge \\
 & ((v8\_rlvect\_1 X1) \wedge ((v3\_normsp\_0 X1) \wedge ((v4\_normsp\_0 X1) \wedge ((v2\_normsp\_1 \\
 & X1) \wedge (l1\_normsp\_1 X1)))))))))) \Rightarrow (v1\_rlsub\_1 (k4\_rsspace4 \\
 & X0 X1) (k5\_lopban\_1 X0 X1)))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\
 & ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 \\
 & X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge \\
 & ((v8\_rlvect\_1 X1) \wedge (l1\_rlvect\_1 X1)))))))))) \Rightarrow (k4\_struct\_0 ( \\
 & k5\_lopban\_1 X0 X1) = k8\_funcop\_1 (u1\_struct\_0 X1) X0 (k4\_struct\_0 \\
 & X1)))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \Rightarrow ((v1\_rlsub\_1 X1 X0) \Rightarrow ((v1\_xboole\_0 X1) \vee (m1\_rlsub\_1 (g1\_rlvect\_1 \\ & X1 (k10\_rsspace X0 X1) (k8\_rsspace X0 X1) (k9\_rsspace X0 X1)) X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (k4\_struct\_0 X1 = \\ & k4\_struct\_0 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v2\_struct\_0 X1) \wedge \\ & ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 \\ & X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge \\ & ((v8\_rlvect\_1 X1) \wedge ((v3\_normsp\_0 X1) \wedge ((v4\_normsp\_0 X1) \wedge ((v2\_normsp\_1 \\ & X1) \wedge (l1\_normsp\_1 X1)))))))))))))) \Rightarrow (\neg v1\_xboole\_0 (k4\_rsspace4 \\ & X0 X1)) \end{aligned} \quad (5)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v2\_struct\_0 X1) \wedge \\ & ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 \\ & X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge \\ & ((v8\_rlvect\_1 X1) \wedge (l1\_rlvect\_1 X1)))))))))) \Rightarrow ((\neg v2\_struct\_0 \\ & (k5\_lopban\_1 X0 X1)) \wedge ((v13\_algstr\_0 (k5\_lopban\_1 X0 X1)) \wedge ((v2\_rlvect\_1 \\ & (k5\_lopban\_1 X0 X1)) \wedge ((v3\_rlvect\_1 (k5\_lopban\_1 X0 X1)) \wedge ((v4\_rlvect\_1 \\ & (k5\_lopban\_1 X0 X1)) \wedge ((v5\_rlvect\_1 (k5\_lopban\_1 X0 X1)) \wedge ((v6\_rlvect\_1 \\ & (k5\_lopban\_1 X0 X1)) \wedge ((v7\_rlvect\_1 (k5\_lopban\_1 X0 X1)) \wedge ((v8\_rlvect\_1 \\ & (k5\_lopban\_1 X0 X1)) \wedge (l1\_rlvect\_1 (k5\_lopban\_1 X0 X1)))))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge (\neg v2\_struct\_0 X1) \wedge \\
& ((v13\_algstr\_0 X1) \wedge (v2\_rlvect\_1 X1) \wedge (v3\_rlvect\_1 X1) \wedge (v4\_rlvect\_1 \\
& X1) \wedge (v5\_rlvect\_1 X1) \wedge (v6\_rlvect\_1 X1) \wedge (v7\_rlvect\_1 X1) \wedge \\
& ((v8\_rlvect\_1 X1) \wedge (v3\_normsp\_0 X1) \wedge (v4\_normsp\_0 X1) \wedge (v2\_normsp\_1 \\
& X1) \wedge (l1\_normsp\_1 X1)))))) \Rightarrow (m1\_subset\_1 (k4\_rsspace4 \\
& X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 (k5\_lopban\_1 X0 X1))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\
& ((v13\_algstr\_0 X1) \wedge (v2\_rlvect\_1 X1) \wedge (v3\_rlvect\_1 X1) \wedge (v4\_rlvect\_1 \\
& X1) \wedge (v5\_rlvect\_1 X1) \wedge (v6\_rlvect\_1 X1) \wedge (v7\_rlvect\_1 X1) \wedge \\
& ((v8\_rlvect\_1 X1) \wedge (v3\_normsp\_0 X1) \wedge (v4\_normsp\_0 X1) \wedge (v2\_normsp\_1 \\
& X1) \wedge (l1\_normsp\_1 X1)))))) \Rightarrow (k5\_rsspace4 X0 X1 = g1\_rlvect\_1 \\
& (k4\_rsspace4 X0 X1) (k10\_rsspace (k5\_lopban\_1 X0 X1) (k4\_rsspace4 \\
& X0 X1)) (k8\_rsspace (k5\_lopban\_1 X0 X1) (k4\_rsspace4 X0 X1)) (k9\_rsspace \\
& (k5\_lopban\_1 X0 X1) (k4\_rsspace4 X0 X1)))
\end{aligned} \tag{9}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\
& ((v13\_algstr\_0 X1) \wedge (v2\_rlvect\_1 X1) \wedge (v3\_rlvect\_1 X1) \wedge (v4\_rlvect\_1 \\
& X1) \wedge (v5\_rlvect\_1 X1) \wedge (v6\_rlvect\_1 X1) \wedge (v7\_rlvect\_1 X1) \wedge \\
& ((v8\_rlvect\_1 X1) \wedge (v3\_normsp\_0 X1) \wedge (v4\_normsp\_0 X1) \wedge (v2\_normsp\_1 \\
& X1) \wedge (l1\_normsp\_1 X1)))))) \Rightarrow (k4\_struct\_0 (k5\_rsspace4 \\
& X0 X1) = k8\_funcop\_1 (u1\_struct\_0 X1) X0 (k4\_struct\_0 X1))
\end{aligned}$$