

# t14\_lp\_space

(TMRrBz2EVHMtfp7GtjwyPTYzxG6hvc1N9w9)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_normsp\_1 : \iota \Rightarrow o$  be given. Let  $g1\_normsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_lp\_space : \iota \Rightarrow \iota$  be given. Let  $k10\_rsspace : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_rsspace : \iota$  be given. Let  $k8\_rsspace : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_rsspace : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_lp\_space : \iota \Rightarrow \iota$  be given. Let  $v4\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v3\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v2\_normsp\_1 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_normsp\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k18\_complex1 : \iota \Rightarrow \iota$  be given. Let  $l2\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $l1\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow ((r1\_xxreal\_0 np\_1 X0) \Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1) \wedge (l1\_normsp\_1 X1)) \Rightarrow ((X1 = g1\_normsp\_1 \\
& (k2\_lp\_space X0) (k10\_rsspace k7\_rsspace (k2\_lp\_space X0)) (k8\_rsspace \\
& k7\_rsspace (k2\_lp\_space X0)) (k9\_rsspace k7\_rsspace (k2\_lp\_space \\
& X0)) (k3\_lp\_space X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X1)) \Rightarrow (\forall X4. \\
& (m1\_subset\_1 X4 k1\_numbers) \Rightarrow (((k1\_normsp\_0 X1 X2 = k6\_numbers) \Rightarrow \\
& (X2 = k4\_struct\_0 X1)) \wedge (((X2 = k4\_struct\_0 X1) \Rightarrow (k1\_normsp\_0 X1 \\
& X2 = k6\_numbers)) \wedge ((r1\_xxreal\_0 k6\_numbers (k1\_normsp\_0 X1 X2)) \wedge \\
& ((r1\_xxreal\_0 (k1\_normsp\_0 X1 (k1\_algstr\_0 X1 X2 X3)) (k7\_real\_1 \\
& (k1\_normsp\_0 X1 X2) (k1\_normsp\_0 X1 X3))) \wedge (k1\_normsp\_0 X1 (k1\_rlvect\_1 \\
& X1 X2 X4) = k8\_real\_1 (k18\_complex1 X4) (k1\_normsp\_0 X1 X2))))))))))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\forall X0.(l2\_normsp\_0 X0) \Rightarrow ((l1\_normsp\_0 X0) \wedge (l2\_struct\_0 X0)) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_normsp\_1 X0) \Rightarrow ((l1\_rlvect\_1 X0) \wedge (l2\_normsp\_0 X0)) \tag{3}$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0) \Rightarrow (m1\_subset\_1 (k4\_struct\_0 X0) (u1\_struct\_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_normsp\_0 X0)) \Rightarrow ((v4\_normsp\_0 X0) \Leftrightarrow (k1\_normsp\_0 X0 (k4\_struct\_0 X0) = k6\_numbers)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_normsp\_0 X0)) \Rightarrow ((v3\_normsp\_0 X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((k1\_normsp\_0 X0 X1 = k6\_numbers) \Rightarrow (X1 = k4\_struct\_0 X0)))) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_normsp\_1 X0)) \Rightarrow ((v2\_normsp\_1 X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ k1\_numbers) \Rightarrow ((k1\_normsp\_0 X0 (k1\_rlvect\_1 X0 X1 X3) = k8\_real\_1 \\ (k18\_complex1 X3) (k1\_normsp\_0 X0 X1)) \wedge (r1\_xxreal\_0 (k1\_normsp\_0 \\ X0 (k1\_algstr\_0 X0 X1 X2)) (k7\_real\_1 (k1\_normsp\_0 X0 X1) (k1\_normsp\_0 \\ X0 X2)))))))))) \end{aligned} \quad (7)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow ((r1\_xxreal\_0 np\_1 X0) \Rightarrow \\ (\forall X1.((\neg v2\_struct\_0 X1) \wedge (l1\_normsp\_1 X1)) \Rightarrow ((X1 = g1\_normsp\_1 \\ (k2\_lp\_space X0) (k10\_rsspace k7\_rsspace (k2\_lp\_space X0)) (k8\_rsspace \\ k7\_rsspace (k2\_lp\_space X0)) (k9\_rsspace k7\_rsspace (k2\_lp\_space \\ X0)) (k3\_lp\_space X0)) \Rightarrow ((v4\_normsp\_0 X1) \wedge ((v3\_normsp\_0 X1) \wedge \\ (v2\_normsp\_1 X1)))))) \end{aligned}$$