t3_rlsub_2 (TMPD6jeMQyaXVz6rx4hERDtTAYoDv8uVjnZ)

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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 $r1\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_rlsub\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v2\_rlvect\_1\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge ((v5\_rlvect\_1\ X0) \wedge ((v6\_rlvect\_1\ X0) \wedge ((v7\_rlvect\_1\ X0) \wedge ((v8\_rlvect\_1\ X0) \wedge (l1\_rlvect\_1\ X0))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1\ X1\ X0) \Rightarrow ((\neg v2\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1\ X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v5\_rlvect\_1\ X1) \wedge ((v6\_rlvect\_1\ X1) \wedge ((v7\_rlvect\_1\ X1) \wedge ((v8\_rlvect\_1\ X1) \wedge (l1\_rlvect\_1\ X1)))))))))) \tag{1}$$

Assume the following.

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

Assume the following.

$$\forall X0.(l2\_algstr\_0\ X0) \Rightarrow ((l2\_struct\_0\ X0) \wedge (l1\_algstr\_0\ X0)) \tag{3}$$

Assume the following.

$$\forall X0.(l1\_rlvect\_1\ X0) \Rightarrow (l2\_algstr\_0\ X0) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v5\_rlvect\_1\ X0)\wedge((v6\_rlvect\_1\ X0)\wedge((v7\_rlvect\_1\ X0)\wedge((v8\_rlvect\_1\ X0)\wedge(l1\_rlvect\_1\ X0))))))))))\wedge((m1\_rlsub\_1\ X1\ X0)\wedge(m1\_rlsub\_1\ X2\ X0)))\Rightarrow((v1\_rlvect\_1\ (k2\_rlsub\_2\ X0\ X1\ X2))\wedge(m1\_rlsub\_1\ (k2\_rlsub\_2\ X0\ X1\ X2)\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(\forall X1.(r1\_struct\_0\ X0\ X1)\Leftrightarrow(X1\in u1\_struct\_0\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k3\_xboole\_0\ X0\ X1)\Leftrightarrow(\forall X3.(X3\in X2)\Leftrightarrow((X3\in X0)\wedge(X3\in X1))) \tag{7}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v5\_rlvect\_1\ X0)\wedge((v6\_rlvect\_1\ X0)\wedge((v7\_rlvect\_1\ X0)\wedge((v8\_rlvect\_1\ X0)\wedge(l1\_rlvect\_1\ X0))))))))))\Rightarrow(\forall X1.(m1\_rlsub\_1\ X1\ X0)\Rightarrow(\forall X2.(m1\_rlsub\_1\ X2\ X0)\Rightarrow(\forall X3.((v1\_rlvect\_1\ X3)\wedge(m1\_rlsub\_1\ X3\ X0))\Rightarrow((X3 = k2\_rlsub\_2\ X0\ X1\ X2)\Leftrightarrow(u1\_struct\_0\ X3 = k3\_xboole\_0\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2)))))) \tag{8}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v5\_rlvect\_1\ X0)\wedge((v6\_rlvect\_1\ X0)\wedge((v7\_rlvect\_1\ X0)\wedge((v8\_rlvect\_1\ X0)\wedge(l1\_rlvect\_1\ X0))))))))))\Rightarrow(\forall X1.(m1\_rlsub\_1\ X1\ X0)\Rightarrow(\forall X2.(m1\_rlsub\_1\ X2\ X0)\Rightarrow(\forall X3.(r1\_struct\_0\ (k2\_rlsub\_2\ X0\ X1\ X2)\ X3)\Leftrightarrow((r1\_struct\_0\ X1\ X3)\wedge(r1\_struct\_0\ X2\ X3)))))$$