# t19_rusub_5 (TM-NWk21YqsVwKcDP9Wdmoo1YHfmzxGVQAzA)

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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 $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v2\_rusub\_4 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_rusub\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_tarski : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X2))) \Rightarrow (m1\_subset\_1\ X0\ X2) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1) \Rightarrow ((v1\_xboole\_0\ X1) \vee (X0 \in X1)) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v2\_rlvect\_1\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge ((v5\_rlvect\_1\ X0) \wedge ((v6\_rlvect\_1\ X0) \wedge ((v7\_rlvect\_1\ X0) \wedge ((v8\_rlvect\_1\ X0) \wedge (l1\_rlvect\_1\ X0))))))))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0\ X1) \wedge ((v2\_rusub\_4\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (((X2 \in X1) \wedge (X3 \in X1)) \Rightarrow (k1\_rusub\_5\ X0\ X1\ (k6\_domain\_1\ (u1\_struct\_0\ X0)\ X3) = k1\_rusub\_5\ X0\ X1\ (k6\_domain\_1\ (u1\_struct\_0\ X0)\ X2)))))) \tag{3}$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1\ X1\ X0 \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k3\_tarski\ X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.(X2 \in X3) \wedge (X3 \in X0))) \tag{5}$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v2\_rlvect\_1\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge ((v5\_rlvect\_1\ X0) \wedge ((v6\_rlvect\_1\ X0) \wedge ((v7\_rlvect\_1\ X0) \wedge ((v8\_rlvect\_1\ X0) \wedge (l1\_rlvect\_1\ X0))))))))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0\ X1) \wedge ((v2\_rusub\_4\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow ((X2 \in X1) \Rightarrow (k1\_rusub\_5\ X0\ X1\ (k6\_domain\_1\ (u1\_struct\_0\ X0)\ X2) = k3\_tarski\ (ReplSep\ (toset\ (\lambda X3 : \iota.m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)))\ (\lambda X3 : \iota.X3 \in X1)\ (\lambda X3 : \iota.k1\_rusub\_5\ X0\ X1\ (k6\_domain\_1\ (u1\_struct\_0\ X0)\ X3)))))))$$