

## l34\_rlsb\_2 (TMWCiWHsagzKt- tLNzs1bf5MVbDWDp8319NS)

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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  $r1\_tarSKI : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_rlsub\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_rlsub\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_rlvect\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1. (m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2. ((v1\_rlvect\_1 \\ & X2) \wedge (m1\_rlsub\_1 X2 X0)) \Rightarrow ((m1\_rlsub\_1 X1 X2) \Leftrightarrow (k1\_rlsub\_2 X0 X1 \\ & X2 = X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1. (m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2. (m1\_rlsub\_1 \\ & X2 X0) \Rightarrow (\forall X3. (m1\_rlsub\_1 X3 X0) \Rightarrow (k1\_rlsub\_2 X0 X1 (k1\_rlsub\_2 \\ & X0 X2 X3) = k1\_rlsub\_2 X0 (k1\_rlsub\_2 X0 X1 X2) X3)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow ((r1\_tarski (u1\_struct\_0 X1) (u1\_struct\_0 X2)) \Rightarrow (m1\_rlsub\_1 \\ & X1 X2)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.((v1\_rlvect\_1 \\ & X2) \wedge (m1\_rlsub\_1 X2 X0)) \Rightarrow (k1\_rlsub\_2 X0 (k2\_rlsub\_2 X0 X1 X2) X2 = \\ & X2))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X2)) \Rightarrow (r1\_tarski X0 X2) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.((v1\_rlvect\_1 \\ & X2) \wedge (m1\_rlsub\_1 X2 X0)) \Rightarrow ((m1\_rlsub\_1 X2 X1) \Leftrightarrow (k2\_rlsub\_2 X0 X2 \\ & X1 = X2)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow ((m1\_rlsub\_1 (k2\_rlsub\_2 X0 X1 X2) X1) \wedge (m1\_rlsub\_1 (k2\_rlsub\_2 \\ & X0 X1 X2) X2)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow (\forall X3.(m1\_rlsub\_1 X3 X0) \Rightarrow (k2\_rlsub\_2 X0 X1 (k2\_rlsub\_2 \\ & X0 X2 X3) = k2\_rlsub\_2 X0 (k2\_rlsub\_2 X0 X1 X2) X3)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow (k2\_rlsub\_2 X0 X1 X2 = k2\_rlsub\_2 X0 X2 X1))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow (r1\_tarski (u1\_struct\_0 X1) (u1\_struct\_0 (k1\_rlsub\_2 X0 \\ & X1 X2)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow (k1\_rlsub\_2 X0 X1 X2 = k1\_rlsub\_2 X0 X2 X1))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow (u1\_struct\_0 (k1\_rlsub\_2 X0 (k2\_rlsub\_2 X0 X1 X2) X2) = u1\_struct\_0 \\ & X2))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow (r1\_tarski (u1\_struct\_0 (k2\_rlsub\_2 X0 X1 X2)) (u1\_struct\_0 \\ & X1)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow ((\neg v2\_struct\_0 \\
& X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge \\
& ((v4\_rlvect\_1 X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 \\
& X1) \wedge ((v8\_rlvect\_1 X1) \wedge (l1\_rlvect\_1 X1))))))))))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
& X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge \\
& ((v5\_rlvect\_1 X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 \\
& X0) \wedge (l1\_rlvect\_1 X0)))))))))) \wedge ((m1\_rlsub\_1 X1 X0) \wedge (m1\_rlsub\_1 \\
& X2 X0))) \Rightarrow ((v1\_rlvect\_1 (k2\_rlsub\_2 X0 X1 X2)) \wedge (m1\_rlsub\_1 (k2\_rlsub\_2 \\
& X0 X1 X2) X0))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
& X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge \\
& ((v5\_rlvect\_1 X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 \\
& X0) \wedge (l1\_rlvect\_1 X0)))))))))) \wedge ((m1\_rlsub\_1 X1 X0) \wedge (m1\_rlsub\_1 \\
& X2 X0))) \Rightarrow ((v1\_rlvect\_1 (k1\_rlsub\_2 X0 X1 X2)) \wedge (m1\_rlsub\_1 (k1\_rlsub\_2 \\
& X0 X1 X2) X0))
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 \\
& X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge \\
& ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge ((v8\_rlvect\_1 \\
& X1) \wedge (l1\_rlvect\_1 X1)))))))))) \Rightarrow ((m1\_rlsub\_1 X1 X0) \Leftrightarrow ((r1\_tarski \\
& (u1\_struct\_0 X1) (u1\_struct\_0 X0)) \wedge ((k4\_struct\_0 X1 = k4\_struct\_0 \\
& X0) \wedge ((u1\_algstr\_0 X1 = k1\_realset1 (u1\_algstr\_0 X0) (u1\_struct\_0 \\
& X1)) \wedge (u1\_rlvect\_1 X1 = k5\_relat\_1 (u1\_rlvect\_1 X0) (k2\_zfmisc\_1 \\
& k1\_numbers (u1\_struct\_0 X1))))))
\end{aligned} \tag{17}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1\_rlsub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_rlsub\_1 \\ & X2 X0) \Rightarrow (\forall X3.(m1\_rlsub\_1 X3 X0) \Rightarrow (r1\_tarski (u1\_struct\_0 \\ & (k1\_rlsub\_2 X0 (k2\_rlsub\_2 X0 X1 X2) (k2\_rlsub\_2 X0 X2 X3)) (u1\_struct\_0 \\ & (k2\_rlsub\_2 X0 X2 (k1\_rlsub\_2 X0 X1 X3))))))) \end{aligned}$$