

# t114\_group\_2 (TMN- JGQ6hhToMGJsWxg3dobzTjXbUWBfmF8G)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_group\_1 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_group\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k13\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_group\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_group\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge (l3\_algstr\_0 \\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0))) \Rightarrow ((k4\_group\_2 X0 (k1\_group\_1 X0) X1 = X1) \wedge (k5\_group\_2 X0 ( \\ k1\_group\_1 X0) X1 = X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_algstr\_0 X0)) \Rightarrow (\forall X1. \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ (u1\_struct\_0 X0)) \Rightarrow ((v3\_group\_1 X0) \Rightarrow (k4\_group\_2 X0 (k6\_algstr\_0 \\ X0 X2 X3) X1 = k4\_group\_2 X0 X2 (k4\_group\_2 X0 X3 X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ X0)) \Rightarrow (\forall X2.(m1\_group\_2 X2 X0) \Rightarrow ((r1\_struct\_0 X2 X1) \Leftrightarrow (k13\_group\_2 \\ X0 X2 X1 = k8\_group\_2 X0 X2)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1.(((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge \\ ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 \\ X0))) \Rightarrow (k2\_group\_1 X0 (k2\_group\_1 X0 X1) = X1) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 X0)\wedge((v3\_group\_1 X0)\wedge(l3\_algstr\_0 X0))))\wedge(m1\_group\_2 X1 X0))\Rightarrow(m1\_subset\_1(k8\_group\_2 X0 X1)(k1\_zfmisc\_1(u1\_struct\_0 X0)))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((l3\_algstr\_0 X0)\wedge((m1\_subset\_1 X1(u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2(u1\_struct\_0 X0))))\Rightarrow(m1\_subset\_1(k6\_algstr\_0 X0 X1 X2)(u1\_struct\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(l3\_algstr\_0 X0))\wedge((m1\_subset\_1 X1(u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2(k1\_zfmisc\_1(u1\_struct\_0 X0))))))\Rightarrow(m1\_subset\_1(k4\_group\_2 X0 X1 X2)(k1\_zfmisc\_1(u1\_struct\_0 X0))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 X0)\wedge((v3\_group\_1 X0)\wedge(l3\_algstr\_0 X0))))\wedge(m1\_subset\_1 X1(u1\_struct\_0 X0)))\Rightarrow(m1\_subset\_1(k2\_group\_1 X0 X1)(u1\_struct\_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0)\Rightarrow(m1\_subset\_1(k1\_group\_1 X0)(u1\_struct\_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 X0)\wedge((v3\_group\_1 X0)\wedge(l3\_algstr\_0 X0))))\Rightarrow(\forall X1.(m1\_group\_2 X1 X0)\Rightarrow(k8\_group\_2 X0 X1 = u1\_struct\_0 X1)) \quad (10)$$

Assume the following.

$$\forall X0.(((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 X0)\wedge((v3\_group\_1 X0)\wedge(l3\_algstr\_0 X0))))\Rightarrow(\forall X1.(m1\_subset\_1 X1(u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2(u1\_struct\_0 X0))\Rightarrow((X2 = k2\_group\_1 X0 X1)\Leftrightarrow((k6\_algstr\_0 X0 X1 X2 = k1\_group\_1 X0)\wedge(k6\_algstr\_0 X0 X2 X1 = k1\_group\_1 X0)))))) \quad (11)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0)\Rightarrow((v3\_group\_1 X0)\Leftrightarrow(\forall X1.(m1\_subset\_1 X1(u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2(u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3(u1\_struct\_0 X0))\Rightarrow(k6\_algstr\_0 X0(k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 X0 X1(k6\_algstr\_0 X0 X2 X3)))))) \quad (12)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\
& X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_group\_2 X1 X0) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k13\_group\_2 X0 X1 X2 = k4\_group\_2 \\
& X0 X2 (k8\_group\_2 X0 X1))))
\end{aligned} \tag{13}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\
& X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. \\
& (m1\_group\_2 X3 X0) \Rightarrow ((k13\_group\_2 X0 X3 X1 = k13\_group\_2 X0 X3 X2) \Leftrightarrow \\
& (r1\_struct\_0 X3 (k6\_algstr\_0 X0 (k2\_group\_1 X0 X2) X1))))))
\end{aligned}$$