

## t43\_group\_6

(TMT4Z9jZq7CsZYbEB8RysYUMDA7sjad8D3u)

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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  $v15\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_group\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_group\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_group\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_group\_6 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_group\_6 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_group\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_group\_1 : \iota \Rightarrow \iota$  be given. Let  $k8\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\
 & X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_group\_1 \\
 & X1) \wedge ((v3\_group\_1 X1) \wedge (l3\_algstr\_0 X1)))) \Rightarrow (\forall X2.(m1\_subset\_1 \\
 & X2 (u1\_struct\_0 X0) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 \\
 & X3 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge ((v1\_group\_6 X3 X0 X1) \wedge ( \\
 & m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\
 & X1)))))) \Rightarrow ((r1\_struct\_0 (k9\_group\_6 X0 X1 X3) X2) \Leftrightarrow (k3\_funct\_2 \\
 & (u1\_struct\_0 X0) (u1\_struct\_0 X1) X3 X2 = k1\_group\_1 X1))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\
 & X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.((v1\_group\_3 X1 X0) \wedge (m1\_group\_2 \\
 & X1 X0)) \Rightarrow (k1\_group\_1 (k5\_group\_6 X0 X1) = k8\_group\_2 X0 X1))
 \end{aligned} \tag{2}$$

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.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0) \wedge \\ & (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))) \wedge (m1\_subset\_1 X3 X0))) \Rightarrow (k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge \\ & ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \wedge ((\neg v2\_struct\_0 X1) \wedge (( \\ & v2\_group\_1 X1) \wedge ((v3\_group\_1 X1) \wedge (l3\_algstr\_0 X1)))))) \Rightarrow (\exists X2. \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)))) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 X0)) \wedge ( \\ & (v5\_relat\_1 X2 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 X2) \wedge ((\neg v1\_xboole\_0 \\ & X2) \wedge ((v1\_partfun1 X2 (u1\_struct\_0 X0)) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)) \wedge (v1\_group\_6 X2 X0 X1)))))))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge \\ & ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \wedge ((v1\_group\_3 X1 X0) \wedge (m1\_group\_2 \\ & X1 X0))) \Rightarrow ((v1\_funct\_1 (k8\_group\_6 X0 X1)) \wedge ((v1\_funct\_2 (k8\_group\_6 \\ & X0 X1) (u1\_struct\_0 X0) (u1\_struct\_0 (k5\_group\_6 X0 X1))) \wedge (v1\_group\_6 \\ & (k8\_group\_6 X0 X1) X0 (k5\_group\_6 X0 X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge \\ & ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \wedge ((v1\_group\_3 X1 X0) \wedge (m1\_group\_2 \\ & X1 X0))) \Rightarrow ((v2\_group\_1 (k5\_group\_6 X0 X1)) \wedge (v3\_group\_1 (k5\_group\_6 \\ & X0 X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge \\ & ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \wedge ((v1\_group\_3 X1 X0) \wedge (m1\_group\_2 \\ & X1 X0))) \Rightarrow ((\neg v2\_struct\_0 (k5\_group\_6 X0 X1)) \wedge (v15\_algstr\_0 (k5\_group\_6 \\ & X0 X1))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 \\ & X0)\wedge((v3\_group\_1 X0)\wedge(l3\_algstr\_0 X0))))\wedge(((\neg v2\_struct\_0 X1)\wedge \\ & ((v2\_group\_1 X1)\wedge((v3\_group\_1 X1)\wedge(l3\_algstr\_0 X1))))\wedge((v1\_funct\_1 \\ & X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1))\wedge((v1\_group\_6 \\ & X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1))))))))\Rightarrow((v15\_algstr\_0 (k9\_group\_6 X0 X1 \\ & X2))\wedge(m1\_group\_2 (k9\_group\_6 X0 X1 X2) X0)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 X0)\wedge \\ & ((v3\_group\_1 X0)\wedge(l3\_algstr\_0 X0))))\wedge((v1\_group\_3 X1 X0)\wedge(m1\_group\_2 \\ & X1 X0)))\Rightarrow((v1\_funct\_1 (k8\_group\_6 X0 X1))\wedge((v1\_funct\_2 (k8\_group\_6 \\ & X0 X1) (u1\_struct\_0 X0) (u1\_struct\_0 (k5\_group\_6 X0 X1)))\wedge(m1\_subset\_1 \\ & (k8\_group\_6 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 (k5\_group\_6 X0 X1))))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 X0)\wedge \\ & ((v3\_group\_1 X0)\wedge(l3\_algstr\_0 X0))))\wedge((v1\_group\_3 X1 X0)\wedge(m1\_group\_2 \\ & X1 X0)))\Rightarrow(l3\_algstr\_0 (k5\_group\_6 X0 X1)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 X0)\wedge((v3\_group\_1 \\ & X0)\wedge(l3\_algstr\_0 X0))))\Rightarrow(\forall X1.((v1\_group\_3 X1 X0)\wedge(m1\_group\_2 \\ & X1 X0))\Rightarrow(\forall X2.((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 (k5\_group\_6 X0 X1)))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 (k5\_group\_6 X0 X1))))))))\Rightarrow \\ & ((X2 = k8\_group\_6 X0 X1)\Leftrightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ & X0))\Rightarrow(k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 (k5\_group\_6 X0 \\ & X1)) X2 X3 = k13\_group\_2 X0 X1 X3))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_group\_1 X0)\wedge((v3\_group\_1 \\ & X0)\wedge(l3\_algstr\_0 X0))))\Rightarrow(\forall X1.((v15\_algstr\_0 X1)\wedge(m1\_group\_2 \\ & X1 X0))\Rightarrow(\forall X2.((v15\_algstr\_0 X2)\wedge(m1\_group\_2 X2 X0))\Rightarrow( \\ & (r1\_group\_2 X0 X1 X2)\Leftrightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ & X0))\Rightarrow((r1\_struct\_0 X1 X3)\Leftrightarrow(r1\_struct\_0 X2 X3)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1\_xboole\_0 X0)\Rightarrow(\forall X2.(m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0))\Rightarrow(v1\_xboole\_0 X2)) \end{aligned} \quad (14)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.((v15\_algstr\_0 X1) \wedge ((v1\_group\_3 \\ X1 X0) \wedge (m1\_group\_2 X1 X0))) \Rightarrow (r1\_group\_2 X0 (k9\_group\_6 X0 (k5\_group\_6 \\ X0 X1) (k8\_group\_6 X0 X1)) X1)) \end{aligned}$$