

# t6\_group\_12

(TMU8Pi5ZP6j8fBvykdbbtJsnbNh9Wa2uiaD)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_group\_7 : \iota \Rightarrow o$  be given. Let  $v2\_group\_7 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_group\_7 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_group\_7 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_group\_12 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_group\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_group\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_group\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v2\_group\_1 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge ( \\
& (v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge ((v1\_group\_7 \\
& X1) \wedge ((v2\_group\_7 X1 X0) \wedge (v3\_group\_7 X1 X0)))))) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 X0) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 \\
& (k2\_group\_7 X0 X1))) \Rightarrow (\forall X4. (m1\_subset\_1 X4 (u1\_struct\_0 \\
& (k1\_group\_7 X0 X1 X2))) \Rightarrow ((X3 = k2\_funct\_7 (k1\_group\_1 (k2\_group\_7 \\
& X0 X1)) X2 X4) \Rightarrow (k2\_group\_1 (k2\_group\_7 X0 X1) X3 = k2\_funct\_7 (k1\_group\_1 \\
& (k2\_group\_7 X0 X1)) X2 (k2\_group\_1 (k1\_group\_7 X0 X1 X2) X4)))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_relat\_1 \\
& X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge \\
& (v1\_group\_7 X1)))))) \wedge (m1\_subset\_1 X2 X0)) \Rightarrow (k1\_group\_7 X0 X1 X2 = \\
& k1\_funct\_1 X1 X2) \\
& \tag{2}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_relat\_1 \\
& X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge \\
& ((v1\_group\_7 X1) \wedge (v3\_group\_7 X1 X0)))))) \wedge (m1\_subset\_1 X2 X0)) \Rightarrow \\
& (v3\_group\_1 (k1\_funct\_1 X1 X2)) \\
& \tag{3}
\end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_relat\_1 \\ & X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge \\ & ((v1\_group\_7 X1) \wedge (v2\_group\_7 X1 X0)))))) \wedge (m1\_subset\_1 X2 X0))) \Rightarrow \\ & (v2\_group\_1 (k1\_funct\_1 X1 X2)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge \\ & ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0))) \Rightarrow (m1\_subset\_1 (k2\_group\_1 X0 X1) (u1\_struct\_0 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_relat\_1 \\ & X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge \\ & (v1\_group\_7 X1)))))) \wedge (m1\_subset\_1 X2 X0))) \Rightarrow ((\neg v2\_struct\_0 (k1\_group\_7 \\ & X0 X1 X2)) \wedge (l3\_algstr\_0 (k1\_group\_7 X0 X1 X2))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_relat\_1 \\ & X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge \\ & ((v1\_group\_7 X1) \wedge ((v2\_group\_7 X1 X0) \wedge (v3\_group\_7 X1 X0)))))) \wedge \\ & (m1\_subset\_1 X2 X0))) \Rightarrow (m1\_subset\_1 (k1\_group\_12 X0 X1 X2) (k1\_zfmisc\_1 \\ & (u1\_struct\_0 (k2\_group\_7 X0 X1)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge ( \\ & (v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge ((v1\_group\_7 \\ & X1) \wedge ((v2\_group\_7 X1 X0) \wedge (v3\_group\_7 X1 X0)))))) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 X0) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 (k2\_group\_7 X0 X1)))) \Rightarrow ((X3 = k1\_group\_12 X0 X1 X2) \Leftrightarrow \\ & (\forall X4. (X4 \in X3) \Leftrightarrow (\exists X5. (m1\_subset\_1 X5 (u1\_struct\_0 \\ & (k1\_group\_7 X0 X1 X2))) \wedge (X4 = k2\_funct\_7 (k1\_group\_1 (k2\_group\_7 \\ & X0 X1) X2 X5)))))) \end{aligned} \quad (8)$$

### Theorem 1

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge ( \\ & (v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge ((v1\_group\_7 \\ & X1) \wedge ((v2\_group\_7 X1 X0) \wedge (v3\_group\_7 X1 X0)))))) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 X0) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 \\ & (k2\_group\_7 X0 X1)))) \Rightarrow ((X3 \in k1\_group\_12 X0 X1 X2) \Rightarrow (k2\_group\_1 ( \\ & k2\_group\_7 X0 X1) X3 \in k1\_group\_12 X0 X1 X2)))) \end{aligned}$$