

# t3\_group\_1

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Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $g3\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k33\_binop\_2 : \iota$  be given. Let  $v2\_group\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v15\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& (\forall X0.(m1\_subset\_1 X0 (u1\_struct\_0 (g3\_algstr\_0 k1\_numbers \\
& \quad k33\_binop\_2))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 (g3\_algstr\_0 \\
& \quad k1\_numbers k33\_binop\_2))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& \quad g3\_algstr\_0 k1\_numbers k33\_binop\_2))) \Rightarrow (k6\_algstr\_0 (g3\_algstr\_0 \\
& \quad k1\_numbers k33\_binop\_2) (k6\_algstr\_0 (g3\_algstr\_0 k1\_numbers \\
& \quad k33\_binop\_2) X0 X1) X2 = k6\_algstr\_0 (g3\_algstr\_0 k1\_numbers k33\_binop\_2) \\
& \quad X0 (k6\_algstr\_0 (g3\_algstr\_0 k1\_numbers k33\_binop\_2) X1 X2)))) \wedge \\
& (\exists X0.(m1\_subset\_1 X0 (u1\_struct\_0 (g3\_algstr\_0 k1\_numbers \\
& \quad k33\_binop\_2))) \wedge (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 (g3\_algstr\_0 \\
& \quad k1\_numbers k33\_binop\_2))) \Rightarrow ((k6\_algstr\_0 (g3\_algstr\_0 k1\_numbers \\
& \quad k33\_binop\_2) X1 X0 = X1) \wedge ((k6\_algstr\_0 (g3\_algstr\_0 k1\_numbers \\
& \quad k33\_binop\_2) X0 X1 = X1) \wedge (\exists X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& \quad g3\_algstr\_0 k1\_numbers k33\_binop\_2))) \wedge ((k6\_algstr\_0 (g3\_algstr\_0 \\
& \quad k1\_numbers k33\_binop\_2) X1 X2 = X0) \wedge (k6\_algstr\_0 (g3\_algstr\_0 \\
& \quad k1\_numbers k33\_binop\_2) X2 X1 = X0))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& (v1\_funct\_1 k33\_binop\_2) \wedge ((v1\_funct\_2 k33\_binop\_2 (k2\_zfmisc\_1 \\
& \quad k1\_numbers k1\_numbers) k1\_numbers) \wedge (m1\_subset\_1 k33\_binop\_2 \\
& \quad (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) \\
& \quad k1\_numbers))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 (k2\_zfmisc\_1 \\ X0 X0) X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ X0 X0) X0))))))\Rightarrow((v15\_algstr\_0 (g3\_algstr\_0 X0 X1))\wedge(l3\_algstr\_0 \\ (g3\_algstr\_0 X0 X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3\_algstr\_0 X0)\Rightarrow((v3\_group\_1 X0)\Leftrightarrow(\forall X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(k6\_algstr\_0 \\ X0 (k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 X0 X1 (k6\_algstr\_0 X0 X2 \\ X3)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3\_algstr\_0 X0)\Rightarrow((v2\_group\_1 X0)\Leftrightarrow(\exists X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0))\wedge(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0))\Rightarrow((k6\_algstr\_0 X0 X2 X1 = X2)\wedge((k6\_algstr\_0 X0 X1 X2 = X2)\wedge(\exists X3. \\ (m1\_subset\_1 X3 (u1\_struct\_0 X0))\wedge((k6\_algstr\_0 X0 X2 X3 = X1)\wedge \\ (k6\_algstr\_0 X0 X3 X2 = X1)))))))) \end{aligned} \quad (5)$$

**Theorem 1**

$$(v3\_group\_1 (g3\_algstr\_0 k1\_numbers k33\_binop\_2))\wedge(v2\_group\_1 \\ (g3\_algstr\_0 k1\_numbers k33\_binop\_2))$$