

# t54\_group\_5 (TMVmzTGgZkiimvvXZeMbiv- FYDFR1EGhp1Hu)

October 27, 2020

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  $m1\_group\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_group\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_group\_2 : \iota \Rightarrow \iota$  be given. Let  $k6\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_group\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_group\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v15\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k4\_group\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_group\_2 X1 X0) \Rightarrow (\forall X2. \\ (m1\_group\_2 X2 X0) \Rightarrow (k1\_group\_1 X0 \in k5\_group\_5 X0 X1 X2))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_group\_1 X1) \wedge ( \\ v3\_group\_1 X1) \wedge (l3\_algstr\_0 X1)))) \Rightarrow (\forall X2.(m1\_group\_2 \\ X2 X1) \Rightarrow (\forall X3.(m1\_group\_2 X3 X1) \Rightarrow ((X0 \in k5\_group\_5 X1 X2 X3) \Leftrightarrow \\ (\exists X4.(m1\_subset\_1 X4 (u1\_struct\_0 X1)) \wedge (\exists X5.(m1\_subset\_1 \\ X5 (u1\_struct\_0 X1)) \wedge ((X0 = k2\_group\_5 X1 X4 X5) \wedge ((r1\_struct\_0 \\ X2 X4) \wedge (r1\_struct\_0 X3 X5)))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (r1\_tarski (k1\_tarski X0) X1) \Leftrightarrow (X0 \in X1) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_group\_1 X1) \wedge ( \\ v3\_group\_1 X1) \wedge (l3\_algstr\_0 X1)))) \Rightarrow ((r1\_struct\_0 (k6\_group\_2 \\ X1) X0) \Leftrightarrow (X0 = k1\_group\_1 X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((k2\_group\_5 X0 (k1\_group\_1 X0) X1 = k1\_group\_1 X0) \wedge (k2\_group\_5 X0 X1 (k1\_group\_1 X0) = k1\_group\_1 X0))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow (k6\_domain\_1 X0 X1 = k1\_tarski X1) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow ((v15\_algstr\_0 (k6\_group\_2 X0)) \wedge (m1\_group\_2 (k6\_group\_2 X0) X0)) \quad (9)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow (m1\_subset\_1 (k1\_group\_1 X0) (u1\_struct\_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_group\_2 X1 X0) \Rightarrow (\forall X2.(m1\_group\_2 X2 X0) \Rightarrow (k5\_group\_5 X0 X1 X2 = k4\_group\_5 X0 (k8\_group\_2 X0 X1) (k8\_group\_2 X0 X2)))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1) \Leftrightarrow (\forall X2.(X2 \in X0) \Rightarrow (X2 \in X1)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1\_tarski X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (X2 = X0)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1) \Leftrightarrow ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X0)) \quad (14)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_group\_2 X1 X0) \Rightarrow ((k5\_group\_5 X0 (k6\_group\_2 X0) X1 = k6\_domain\_1 (u1\_struct\_0 X0) (k1\_group\_1 X0)) \wedge (k5\_group\_5 X0 X1 (k6\_group\_2 X0) = k6\_domain\_1 (u1\_struct\_0 X0) (k1\_group\_1 X0))))$$