

t116\_scmpds\_6  
(TMQTsD8Mny8YU11KyYhJFxbVHkBmUqZ8XJF)

October 27, 2020

Let  $v1\_ami\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmpds\_2 : \iota$  be given. Let  $v1\_int\_1 : \iota \Rightarrow o$  be given. 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  $k5\_numbers : \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_afinsq\_1 : \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k10\_scmpds\_6 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k8\_scmpds\_6 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v5\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2))) \Rightarrow \\ (\forall X1.(v1\_int\_1 X1) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge (( \\ v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 ( \\ u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge \\ (v1\_afinsq\_1 X2)))))) \Rightarrow ((k6\_numbers \in k9\_xtuple\_0 (k8\_scmpds\_6 \\ X0 X1 X2)) \wedge (np\_1 \in k9\_xtuple\_0 (k8\_scmpds\_6 X0 X1 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2))) \Rightarrow \\ (\forall X1.(v1\_int\_1 X1) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge (( \\ v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 ( \\ u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge \\ (v1\_afinsq\_1 X2)))))) \Rightarrow (k5\_card\_1 (k8\_scmpds\_6 X0 X1 X2) = k2\_nat\_1 \\ (k5\_card\_1 X2) np\_2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2))) \Rightarrow \\ (\forall X1.(v1\_int\_1 X1) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge (( \\ v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 ( \\ u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge \\ (v1\_afinsq\_1 X2)))))) \Rightarrow (k5\_card\_1 (k10\_scmpds\_6 X0 X1 X2) = k2\_nat\_1 \\ (k5\_card\_1 X2) np\_2))) \end{aligned} \quad (3)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (4)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (5)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0) \Rightarrow (k5\_card\_1 X0 = k1\_card\_1 X0) \quad (6)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v5\_ordinal1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finset\_1 X0)))) \Rightarrow (k1\_card\_1 X0 = k9\_xtuple\_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v1\_ami\_2 X0) \wedge (m1\_subset\_1 \\ X0 (u1\_struct\_0 k1\_scmpds\_2))) \wedge ((v1\_int\_1 X1) \wedge ((\neg v1\_xboole\_0 \\ X2) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 \\ X2 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 \\ X2) \wedge (v1\_afinsq\_1 X2)))))) \Rightarrow ((\neg v1\_xboole\_0 (k8\_scmpds\_6 X0 \\ X1 X2)) \wedge ((v1\_relat\_1 (k8\_scmpds\_6 X0 X1 X2)) \wedge ((v4\_relat\_1 (k8\_scmpds\_6 \\ X0 X1 X2) k5\_numbers) \wedge ((v5\_relat\_1 (k8\_scmpds\_6 X0 X1 X2) (u1\_compos\_1 \\ k1\_scmpds\_2)) \wedge ((v1\_funct\_1 (k8\_scmpds\_6 X0 X1 X2)) \wedge ((v1\_finset\_1 \\ (k8\_scmpds\_6 X0 X1 X2)) \wedge (v1\_afinsq\_1 (k8\_scmpds\_6 X0 X1 X2))))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v1\_ami\_2 X0) \wedge (m1\_subset\_1 \\ X0 (u1\_struct\_0 k1\_scmpds\_2))) \wedge ((v1\_int\_1 X1) \wedge ((\neg v1\_xboole\_0 \\ X2) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 \\ X2 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 \\ X2) \wedge (v1\_afinsq\_1 X2)))))) \Rightarrow ((\neg v1\_xboole\_0 (k10\_scmpds\_6 \\ X0 X1 X2)) \wedge ((v1\_relat\_1 (k10\_scmpds\_6 X0 X1 X2)) \wedge ((v4\_relat\_1 \\ (k10\_scmpds\_6 X0 X1 X2) k5\_numbers) \wedge ((v5\_relat\_1 (k10\_scmpds\_6 \\ X0 X1 X2) (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 (k10\_scmpds\_6 \\ X0 X1 X2)) \wedge ((v1\_finset\_1 (k10\_scmpds\_6 X0 X1 X2)) \wedge (v1\_afinsq\_1 \\ (k10\_scmpds\_6 X0 X1 X2))))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_afinsq\_1 X0)))))) \Rightarrow ((v1\_relat\_1 X0) \wedge ((v5\_ordinal1 X0) \wedge (v1\_funct\_1 X0))) \quad (10)$$

**Theorem 1**

$$\forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2))) \Rightarrow (\forall X1.(v1\_int\_1 X1) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 X2)))))))))) \Rightarrow ((k6\_numbers \in k9\_xtuple\_0 (k10\_scmpds\_6 X0 X1 X2)) \wedge (np\_1 \in k9\_xtuple\_0 (k10\_scmpds\_6 X0 X1 X2))))$$