

## t56\_scmpds\_6

(TMSv9VTT5Xh4LBdFK4LXj4xjWLHWExo9obp)

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  $k6\_scmpds\_6 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_scmpds\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k1\_scmpds\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_scmpds\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_scmpds\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_scmpds\_2 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 (u1\_compos\_1 k1\_scmpds\_2)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge \\ & ((v5\_relat\_1 X1 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X1) \wedge \\ & ((v1\_finset\_1 X1) \wedge (v1\_afinsq\_1 X1))))))) \Rightarrow (k5\_card\_1 (k2\_scmpds\_4 \\ & X0 X1) = k2\_nat\_1 (k5\_card\_1 X1) np\_1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \end{aligned} \quad (2)$$

Assume the following.

$$k2\_xcmplx\_0 np\_1 np\_1 = np\_2 \quad (3)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k5\_numbers)\wedge(v7\_ordinal1 X1))\Rightarrow(k2\_nat\_1 X0 X1 = k2\_xcmplx\_0 X0 X1) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_subset\_1 X0 (u1\_compos\_1 k1\_scmpds\_2))\Rightarrow(\forall X1. \\ (m1\_subset\_1 X1 (u1\_compos\_1 k1\_scmpds\_2))\Rightarrow(\forall X2.((\neg v1\_xboole\_0 \\ X2)\wedge((v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 k5\_numbers)\wedge((v5\_relat\_1 \\ X2 (u1\_compos\_1 k1\_scmpds\_2))\wedge((v1\_funct\_1 X2)\wedge((v1\_finset\_1 \\ X2)\wedge(v1\_afinsq\_1 X2))))))\Rightarrow((k6\_numbers \in k9\_xtuple\_0 (k1\_scmpds\_4 \\ (k4\_scmpds\_4 X0 X1) X2))\wedge(np\_1 \in k9\_xtuple\_0 (k1\_scmpds\_4 (k4\_scmpds\_4 \\ X0 X1) X2)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_int\_1 X0)\wedge(v1\_int\_1 X1))\Rightarrow(v1\_int\_1 (k2\_xcmplx\_0 X0 X1)) \quad (7)$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1 X1 X0 \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v1\_ami\_2 X0)\wedge(m1\_subset\_1 \\ X0 (u1\_struct\_0 k1\_scmpds\_2)))\wedge((v1\_int\_1 X1)\wedge(v1\_int\_1 X2)))\Rightarrow \\ (m1\_subset\_1 (k7\_scmpds\_2 X0 X1 X2) (u1\_compos\_1 k1\_scmpds\_2)) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0)\Rightarrow(m1\_subset\_1 (k5\_card\_1 X0) k4\_ordinal1) \quad (10)$$

Assume the following.

$$\forall X0.(v1\_int\_1 X0)\Rightarrow(m1\_subset\_1 (k3\_scmpds\_2 X0) (u1\_compos\_1 k1\_scmpds\_2)) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_ami\_2 X0)\wedge(m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2)))\Rightarrow \\ (\forall X1.(v1\_int\_1 X1)\Rightarrow(\forall X2.((\neg v1\_xboole\_0 X2)\wedge(( \\ v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 k5\_numbers)\wedge((v5\_relat\_1 X2 ( \\ u1\_compos\_1 k1\_scmpds\_2))\wedge((v1\_funct\_1 X2)\wedge((v1\_finset\_1 X2)\wedge \\ (v1\_afinsq\_1 X2))))))\Rightarrow(k6\_scmpds\_6 X0 X1 X2 = k1\_scmpds\_4 (k4\_scmpds\_4 \\ (k7\_scmpds\_2 X0 X1 np\_2) (k3\_scmpds\_2 (k2\_nat\_1 (k5\_card\_1 X2) \\ np\_1))) X2))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k5\_numbers)\wedge(v7\_ordinal1 X1))\Rightarrow(k2\_nat\_1 X0 X1 = k2\_nat\_1 X1 X0) \quad (13)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \quad (14)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(v1\_int\_1 X0) \quad (15)$$

**Theorem 1**

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