

# t16\_matrtop1 (TMHP8wLYHhgtuusDzKz1oSR27SGDDFgpptB)

October 27, 2020

Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v6\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v33\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v5\_group\_1 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v5\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $l6\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $m1\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k8\_matrix13 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_matrlin : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_matrix\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_matrix\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k12\_matrix\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k6\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k7\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_0 : \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xreal\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_card\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v1\_matrix\_1 : \iota \Rightarrow o$  be given. Let  $k3\_finseq\_2 : \iota \Rightarrow \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let

$v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge \\ ((\neg v6\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v33\_algstr\_0\ X1) \wedge \\ (v3\_group\_1\ X1) \wedge ((v5\_group\_1\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1 \\ X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1\ X1) \wedge \\ (l6\_algstr\_0\ X1)))))))))) \Rightarrow ((k5\_matrix\_6\ X0\ X1\ (k12\_matrix\_1 \\ X1\ X0) = k12\_matrix\_1\ X1\ X0) \wedge (v1\_matrix\_6\ (k12\_matrix\_1\ X1\ X0)\ X0 \\ X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge \\ ((\neg v6\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v33\_algstr\_0\ X1) \wedge \\ (v3\_group\_1\ X1) \wedge ((v5\_group\_1\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1 \\ X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1\ X1) \wedge \\ (l6\_algstr\_0\ X1)))))))))) \Rightarrow (\forall X2.(m1\_matrix\_1\ X2\ (u1\_struct\_0 \\ X1)\ X0\ X0) \Rightarrow ((k8\_matrix13\ X1\ X2 = X0) \Leftrightarrow (k12\_matrix\_3\ X0\ X1\ X2 \neq k4\_struct\_0 \\ X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0\ X0) \Rightarrow (\forall X1.(v1\_xreal\_0\ X1) \Rightarrow (\neg (r1\_xreal\_0 \\ X0\ X1) \wedge ((\neg v2\_xxreal\_0\ X1) \wedge (v2\_xxreal\_0\ X0)))) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0\ X0) \Rightarrow (k6\_xcmplx\_0\ X0\ k6\_numbers = X0) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge \\ ((\neg v6\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v33\_algstr\_0\ X1) \wedge \\ (v3\_group\_1\ X1) \wedge ((v5\_group\_1\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1 \\ X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1\ X1) \wedge \\ (l6\_algstr\_0\ X1)))))))))) \Rightarrow (\forall X2.(m1\_matrix\_1\ X2\ (u1\_struct\_0 \\ X1)\ X0\ X0) \Rightarrow ((v1\_matrix\_6\ X2\ X0\ X1) \Leftrightarrow (k12\_matrix\_3\ X0\ X1\ X2 \neq k4\_struct\_0 \\ X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_finseq\_1\ X0))) \Rightarrow \\ ((k7\_finseq\_1\ X0\ k1\_xboole\_0 = X0) \wedge (k7\_finseq\_1\ k1\_xboole\_0\ X0 = \\ X0)) \end{aligned} \quad (7)$$

Assume the following.

$$v1\_xboole\_0 \text{ np\_}0 \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & ((\neg v1\_xboole\_0 X0) \wedge ((v7\_ordinal1 X1) \wedge ((v7\_ordinal1 X2) \wedge ((v7\_ordinal1 \\ & X3) \wedge ((m1\_matrix\_1 X4 X0 X1 X3) \wedge (m1\_matrix\_1 X5 X0 X2 X3)))))) \Rightarrow ( \\ & k8\_matrlin X0 X1 X2 X3 X4 X5 = k7\_finseq\_1 X4 X5) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 X0) \wedge (v7\_ordinal1 X1)) \Rightarrow (k7\_nat\_d X0 X1 = k1\_xreal\_0 X0 X1) \quad (11)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (12)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow (k3\_finseq\_1 X0 = k1\_card\_1 X0) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (\forall X2. \\ & ((\neg v2\_struct\_0 X2) \wedge ((\neg v6\_struct\_0 X2) \wedge ((v13\_algstr\_0 X2) \wedge ( \\ & (v33\_algstr\_0 X2) \wedge (v3\_group\_1 X2) \wedge (v5\_group\_1 X2) \wedge (v2\_rlvect\_1 \\ & X2) \wedge (v3\_rlvect\_1 X2) \wedge (v4\_rlvect\_1 X2) \wedge (v4\_vectsp\_1 X2) \wedge \\ & ((v5\_vectsp\_1 X2) \wedge (l6\_algstr\_0 X2)))))))))) \Rightarrow (\forall X3. \\ & (m1\_matrix\_1 X3 (u1\_struct\_0 X2) X0 X1) \Rightarrow (\neg((X0 = k6\_numbers) \Rightarrow ( \\ & X1 = k6\_numbers)) \wedge ((k8\_matrix13 X2 X3 = X0) \wedge (\forall X4.(m1\_matrix\_1 \\ & X4 (u1\_struct\_0 X2) (k7\_nat\_d X1 X0) X1) \Rightarrow (k8\_matrix13 X2 (k8\_matrlin \\ & (u1\_struct\_0 X2) X0 (k7\_nat\_d X1 X0) X1 X3 X4) \neq X1)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (15)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow ((\neg v1\_xboole\_0 (k1\_card\_1 X0)) \wedge (v1\_card\_1 (k1\_card\_1 X0))) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0)\Rightarrow((v1\_funct\_1 X1)\wedge((v1\_finseq\_1 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0)))))) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((v7\_ordinal1 X1)\wedge(v7\_ordinal1 X2)))\Rightarrow(\forall X3.(m1\_matrix\_1 X3 X0 X1 X2)\Rightarrow((v1\_matrix\_1 X3)\wedge(m2\_finseq\_1 X3 (k3\_finseq\_2 X0)))) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 X0)\Rightarrow((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1))) \quad (19)$$

Assume the following.

$$\forall X0.(l6\_algstr\_0 X0)\Rightarrow((l2\_algstr\_0 X0)\wedge(l5\_algstr\_0 X0)) \quad (20)$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0)\Rightarrow(l1\_struct\_0 X0) \quad (21)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0)\Rightarrow((l2\_struct\_0 X0)\wedge(l1\_algstr\_0 X0)) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(l6\_algstr\_0 X0))\wedge(v7\_ordinal1 X1))\Rightarrow(m1\_matrix\_1 (k12\_matrix\_1 X0 X1) (u1\_struct\_0 X0) X1 X1) \quad (23)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(\forall X1.(v1\_xreal\_0 X1)\Rightarrow(((r1\_xreal\_0 k6\_numbers (k6\_xcmplx\_0 X0 X1))\Rightarrow(k1\_xreal\_0 X0 X1 = k6\_xcmplx\_0 X0 X1))\wedge((\neg r1\_xreal\_0 k6\_numbers (k6\_xcmplx\_0 X0 X1))\Rightarrow(k1\_xreal\_0 X0 X1 = k6\_numbers)))) \quad (24)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(v7\_ordinal1 X1)\Rightarrow(\forall X2.(v7\_ordinal1 X2)\Rightarrow(\forall X3.((v1\_matrix\_1 X3)\wedge(m2\_finseq\_1 X3 (k3\_finseq\_2 X0))))\Rightarrow((m1\_matrix\_1 X3 X0 X1 X2)\Leftrightarrow((k3\_finseq\_1 X3 = X1)\wedge(\forall X4.(m2\_finseq\_1 X4 X0)\Rightarrow((X4 \in k10\_xtuple\_0 X3)\Rightarrow(k3\_finseq\_1 X4 = X2)))))))) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0)\wedge(v1\_xxreal\_0 X1))\Rightarrow( (r1\_xxreal\_0 X0 X1)\vee(r1\_xxreal\_0 X1 X0)) \quad (26)$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0 X0)\wedge((v1\_xxreal\_0 X0)\wedge(\neg v3\_xxreal\_0 X0)))\Rightarrow((v1\_xxreal\_0 X0)\wedge(v2\_xxreal\_0 X0)) \quad (27)$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0)\wedge(v2\_xxreal\_0 X0))\Rightarrow((\neg v1\_xboole\_0 X0)\wedge((v1\_xxreal\_0 X0)\wedge(\neg v3\_xxreal\_0 X0))) \quad (28)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(v1\_xcmplx\_0 X0) \quad (29)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow((v7\_ordinal1 X0)\wedge(\neg v3\_xxreal\_0 X0)) \quad (30)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(v1\_xxreal\_0 X0) \quad (31)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(v1\_xreal\_0 X0) \quad (32)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(v7\_ordinal1 X0)\Rightarrow(\forall X1.(v7\_ordinal1 X1)\Rightarrow(\forall X2. \\ & ((\neg v2\_struct\_0 X2)\wedge((\neg v6\_struct\_0 X2)\wedge((v13\_algstr\_0 X2)\wedge( \\ & (v33\_algstr\_0 X2)\wedge(v3\_group\_1 X2)\wedge((v5\_group\_1 X2)\wedge((v2\_rlvect\_1 \\ & X2)\wedge((v3\_rlvect\_1 X2)\wedge((v4\_rlvect\_1 X2)\wedge((v4\_vectsp\_1 X2)\wedge \\ & ((v5\_vectsp\_1 X2)\wedge(l6\_algstr\_0 X2))))))))))\Rightarrow(\forall X3. \\ & (m1\_matrix\_1 X3 (u1\_struct\_0 X2) X0 X1)\Rightarrow(\neg(k8\_matrix13 X2 X3 = X0)\wedge \\ & (\forall X4.(m1\_matrix\_1 X4 (u1\_struct\_0 X2) (k7\_nat.d X1 X0) X1)\Rightarrow \\ & (k8\_matrix13 X2 (k8\_matrlin (u1\_struct\_0 X2) X0 (k7\_nat.d X1 X0) \\ & X1 X3 X4)\neq X1)))))) \end{aligned}$$