

## t9\_matrix.3

(TMHYf5qJcVpNJraSmdm748w7dA5xuGZvE1u)

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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  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_matrix\_1 : \iota \Rightarrow \iota$  be given. Let  $k12\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_matrix\_1 : \iota \Rightarrow o$  be given. Let  $k3\_finseq\_2 : \iota \Rightarrow \iota$  be given. Let  $k7\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $m1\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  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  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_matrix\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(k4\_tarski X0 X1 \in k2\_zfmisc\_1 X2 X3) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X3)) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0) \wedge (((v1\_matrix\_1 X1) \wedge (m1\_finseq\_1 X1 (k3\_finseq\_2 X0))) \wedge (v7\_ordinal1 X2))) \Rightarrow (k9\_matrix\_1 X0 X1 X2 = k7\_matrix\_1 X0 X1 X2) \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (m2\_finseq\_1 X1 X0) \Rightarrow ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0)))) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (v7\_ordinal1 X1) \wedge (v7\_ordinal1 X2)) \Rightarrow (\forall X3. (m1\_matrix\_1 X3 X0 X1 X2) \Rightarrow ((v1\_matrix\_1 X3) \wedge (m2\_finseq\_1 X3 (k3\_finseq\_2 X0)))) \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_finseq\_1 X1 X0) \Rightarrow ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1)) \quad (7)$$

Assume the following.

$$\forall X0. (l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0. (l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (9)$$

Assume the following.

$$\forall X0. (l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge ((v1\_matrix\_1 X1) \wedge (m1\_finseq\_1 X1 (k3\_finseq\_2 X0)) \wedge (v7\_ordinal1 X2))) \Rightarrow (m2\_finseq\_1 (k7\_matrix\_1 X0 X1 X2) X0) \quad (11)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \wedge (v7\_ordinal1 X1)) \Rightarrow (m1\_matrix\_1 (k12\_matrix\_1 X0 X1) (u1\_struct\_0 X0) X1 X1) \quad (12)$$

Assume the following.

$$\forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_matrix\_1 X1) \wedge (m2\_finseq\_1 X1 (k3\_finseq\_2 X0)) \Rightarrow (\forall X2. (v7\_ordinal1 X2) \Rightarrow (\forall X3. (m2\_finseq\_1 X3 X0) \Rightarrow ((X3 = k7\_matrix\_1 X0 X1 X2) \Leftrightarrow ((k3\_finseq\_1 X3 = k3\_finseq\_1 X1) \wedge (\forall X4. (v7\_ordinal1 X4) \Rightarrow ((X4 \in k4\_finseq\_1 X1) \Rightarrow (k1\_funct\_1 X3 X4 = k3\_matrix\_1 X0 X1 X4 X2)))))))))) \quad (13)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge ((v1\_finseq\_1 X0) \wedge (v1\_matrix\_1 X0)))) \Rightarrow (k2\_matrix\_1 X0 = k2\_zfmisc\_1 (k4\_finseq\_1 X0) (k2\_finseq\_1 (k1\_matrix\_1 X0))) \quad (14)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow (\forall X1. (v7\_ordinal1 X1) \Rightarrow (\forall X2. (m1\_matrix\_1 X2 (u1\_struct\_0 X0) X1 X1) \Rightarrow ((X2 = k12\_matrix\_1 X0 X1) \Leftrightarrow ((\forall X3. (v7\_ordinal1 X3) \Rightarrow ((k4\_tarski X3 X3 \in k2\_matrix\_1 X2) \Rightarrow (k3\_matrix\_1 (u1\_struct\_0 X0) X2 X3 X3 = k5\_struct\_0 X0)))) \wedge (\forall X3. (v7\_ordinal1 X3) \Rightarrow (\forall X4. (v7\_ordinal1 X4) \Rightarrow ((k4\_tarski X3 X4 \in k2\_matrix\_1 X2) \Rightarrow ((X3 = X4) \vee (k3\_matrix\_1 (u1\_struct\_0 X0) X2 X3 X4 = k4\_struct\_0 X0)))))))))) \quad (15)$$

**Theorem 1**

$$\forall X0. (v7\_ordinal1 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((\neg v6\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v33\_algstr\_0 X1) \wedge (v3\_group\_1 X1) \wedge ((v5\_group\_1 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_1 X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))))))))))) \Rightarrow (\forall X2. (v7\_ordinal1 X2) \Rightarrow (\forall X3. (v7\_ordinal1 X3) \Rightarrow (((k4\_tarski X2 X3 \in k2\_matrix\_1 (k12\_matrix\_1 X1 X0)) \wedge (X2 = X3)) \Rightarrow (k1\_funct\_1 (k9\_matrix\_1 (u1\_struct\_0 X1) (k12\_matrix\_1 X1 X0) X3) X2 = k5\_struct\_0 X1))))))$$