

## t15\_matrix\_2

(TMagsZuNgjVbpW1K4MyZ3RMzVaQzfqQcest)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_matrix\_1 : \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_finseq\_2 : \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k2\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_matrix\_1 : \iota \Rightarrow \iota$  be given. Let  $k8\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  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  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k4\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_matrix\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. (v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (2)$$

Assume the following.

$$\forall X0. (v7\_ordinal1 X0) \Rightarrow (\neg(k6\_numbers \neq X0) \wedge (r1\_xxreal\_0 X0 k6\_numbers)) \quad (3)$$

Assume the following.

$$\forall X0. (v7\_ordinal1 X0) \Rightarrow (r1\_xxreal\_0 k6\_numbers X0) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & (\forall X1. (v7\_ordinal1 X1) \Rightarrow ((X1 \in k1\_relset\_1 k5\_numbers X0) \Leftrightarrow \\ & ((r1\_xxreal\_0 np\_1 X1) \wedge (r1\_xxreal\_0 X1 (k3\_finseq\_1 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$m1\_subset\_1 \ k1\_xboole\_0 \ k4\_ordinal1 \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1 \ X0) \Rightarrow (\forall X1.(v7\_ordinal1 \ X1) \Rightarrow (( \\ X0 \in k2\_finseq\_1 \ X1) \Leftrightarrow ((r1\_xxreal\_0 \ np\_1 \ X0) \wedge (r1\_xxreal\_0 \ X0 \ X1)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 \ X0) \Rightarrow (\forall X1.((v1\_matrix\_1 \ X1) \wedge \\ (m2\_finseq\_1 \ X1 \ (k3\_finseq\_2 \ X0))) \Rightarrow (\forall X2.(v7\_ordinal1 \\ X2) \Rightarrow ((X2 \in k4\_finseq\_1 \ X1) \Rightarrow (k8\_matrix\_1 \ X0 \ X1 \ X2 = k9\_matrix\_1 \ X0 \\ (k4\_matrix\_1 \ X0 \ X1) \ X2)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 \ X0) \Rightarrow (\forall X1.((v1\_matrix\_1 \ X1) \wedge \\ (m2\_finseq\_1 \ X1 \ (k3\_finseq\_2 \ X0))) \Rightarrow (\neg(\neg r1\_xxreal\_0 \ (k3\_finseq\_1 \\ X1) \ k6\_numbers) \wedge ((\neg r1\_xxreal\_0 \ (k1\_matrix\_1 \ X1) \ k6\_numbers) \wedge \\ (k4\_matrix\_1 \ X0 \ (k4\_matrix\_1 \ X0 \ X1) \neq X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 \ X1 \ X0) \Leftrightarrow (m1\_finseq\_1 \ X1 \ X0) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 \ X0) \wedge ((v1\_matrix\_1 \\ X1) \wedge (m1\_finseq\_1 \ X1 \ (k3\_finseq\_2 \ X0))) \wedge (v7\_ordinal1 \ X2)) \Rightarrow ( \\ k9\_matrix\_1 \ X0 \ X1 \ X2 = k7\_matrix\_1 \ X0 \ X1 \ X2) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 \ X0) \wedge ((v1\_matrix\_1 \\ X1) \wedge (m1\_finseq\_1 \ X1 \ (k3\_finseq\_2 \ X0))) \wedge (v7\_ordinal1 \ X2)) \Rightarrow ( \\ k8\_matrix\_1 \ X0 \ X1 \ X2 = k6\_matrix\_1 \ X0 \ X1 \ X2) \end{aligned} \quad (12)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (13)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_finseq\_1 \ X0))) \Rightarrow \\ (k4\_finseq\_1 \ X0 = k9\_xtuple\_0 \ X0) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(k2\_finseq\_1\ X0 = k1\_finseq\_1\ X0) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge(v4\_relat\_1\ X1\ X0))\Rightarrow( \quad (17)$$

$$k1\_reset\_1\ X0\ X1 = k9\_xtuple\_0\ X1)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.((v1\_matrix\_1\ X1)\wedge \quad (18)$$

$$(m2\_finseq\_1\ X1\ (k3\_finseq\_2\ X0)))\Rightarrow((\neg r1\_xreal\_0\ (k1\_matrix\_1$$

$$X1)\ k1\_xboole\_0)\Rightarrow((k3\_finseq\_1\ (k4\_matrix\_1\ X0\ X1) = k1\_matrix\_1$$

$$X1)\wedge(k1\_matrix\_1\ (k4\_matrix\_1\ X0\ X1) = k3\_finseq\_1\ X1))))$$

Assume the following.

$$v1\_xboole\_0\ k1\_xboole\_0 \quad (19)$$

Assume the following.

$$\forall X0.((v7\_ordinal1\ X0)\wedge(v1\_xboole\_0\ X0))\Rightarrow(v1\_xboole\_0 \quad (20)$$

$$(k1\_finseq\_1\ X0))$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0)\Rightarrow((v1\_funct\_1\ X1)\wedge( \quad (21)$$

$$(v1\_finseq\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers$$

$$X0))))))$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1\ X1\ X0)\Rightarrow((v1\_relat\_1\ X1)\wedge( \quad (22)$$

$$(v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1)))$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((v1\_matrix\_1\ X1)\wedge \quad (23)$$

$$(m1\_finseq\_1\ X1\ (k3\_finseq\_2\ X0))))\Rightarrow((v1\_matrix\_1\ (k4\_matrix\_1$$

$$X0\ X1))\wedge(m2\_finseq\_1\ (k4\_matrix\_1\ X0\ X1)\ (k3\_finseq\_2\ X0)))$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge((v1\_finseq\_1 \quad (24)$$

$$X0)\wedge(v1\_matrix\_1\ X0))))\Rightarrow(m1\_subset\_1\ (k1\_matrix\_1\ X0)\ k5\_numbers)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_matrix\_1 X1) \wedge \\
& (m2\_finseq\_1 X1 (k3\_finseq\_2 X0))) \Rightarrow (\forall X2.((v1\_matrix\_1 \\
& X2) \wedge (m2\_finseq\_1 X2 (k3\_finseq\_2 X0))) \Rightarrow ((X2 = k4\_matrix\_1 X0 X1) \Leftrightarrow \\
& ((k3\_finseq\_1 X2 = k1\_matrix\_1 X1) \wedge ((\forall X3.(v7\_ordinal1 \\
& X3) \Rightarrow (\forall X4.(v7\_ordinal1 X4) \Rightarrow ((k4\_tarski X3 X4 \in k2\_matrix\_1 \\
& X2) \Leftrightarrow (k4\_tarski X4 X3 \in k2\_matrix\_1 X1)))) \wedge (\forall X3.(v7\_ordinal1 \\
& X3) \Rightarrow (\forall X4.(v7\_ordinal1 X4) \Rightarrow ((k4\_tarski X4 X3 \in k2\_matrix\_1 \\
& X1) \Rightarrow (k3\_matrix\_1 X0 X2 X3 X4 = k3\_matrix\_1 X0 X1 X4 X3))))))))) \\
& \hspace{15em} (25)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge ((v1\_finseq\_1 \\
& X0) \wedge (v1\_matrix\_1 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 k5\_numbers) \Rightarrow \\
& (((\neg r1\_xxreal\_0 (k3\_finseq\_1 X0) k1\_xboole\_0) \Rightarrow ((X1 = k1\_matrix\_1 \\
& X0) \Leftrightarrow (\exists X2.((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_finseq\_1 \\
& X2)))) \wedge ((X2 \in k10\_xtuple\_0 X0) \wedge (k3\_finseq\_1 X2 = X1)))))) \wedge ((r1\_xxreal\_0 \\
& (k3\_finseq\_1 X0) k1\_xboole\_0) \Rightarrow ((X1 = k1\_matrix\_1 X0) \Leftrightarrow (X1 = k1\_xboole\_0)))))) \\
& \hspace{15em} (26)
\end{aligned}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (27)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\
& ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 X0) \wedge \\
& (v1\_finseq\_1 X0)))) \quad (28)
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_matrix\_1 X1) \wedge \\
& (m2\_finseq\_1 X1 (k3\_finseq\_2 X0))) \Rightarrow (\forall X2.(v7\_ordinal1 \\
& X2) \Rightarrow ((X2 \in k2\_finseq\_1 (k1\_matrix\_1 X1)) \Rightarrow (k8\_matrix\_1 X0 (k4\_matrix\_1 \\
& X0 X1) X2 = k9\_matrix\_1 X0 X1 X2))))
\end{aligned}$$