

## t16\_matrix\_6

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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  $m1\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_matrix\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_matrix\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_matrix\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_matrix\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v7\_ordinal1 X0) \wedge (((\neg v2\_struct\_0 \\ & X1) \wedge ((\neg v6\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v33\_algstr\_0 X1) \wedge \\ & ((v3\_group\_1 X1) \wedge ((v5\_group\_1 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 \\ & X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_1 X1) \wedge ((v5\_vectsp\_1 X1) \wedge \\ & (l6\_algstr\_0 X1)))))))))) \wedge (m1\_matrix\_1 X2 (u1\_struct\_0 X1) \\ & X0 X0)) \Rightarrow (m1\_matrix\_1 (k5\_matrix\_6 X0 X1 X2) (u1\_struct\_0 X1) X0 \\ & X0) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. (v7\_ordinal1 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\ & ((\neg v6\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v33\_algstr\_0 X1) \wedge \\ & (v3\_group\_1 X1) \wedge ((v5\_group\_1 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 \\ & X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_1 X1) \wedge ((v5\_vectsp\_1 X1) \wedge \\ & (l6\_algstr\_0 X1)))))))))) \Rightarrow (\forall X2. (m1\_matrix\_1 X2 (u1\_struct\_0 \\ & X1) X0 X0) \Rightarrow ((v1\_matrix\_6 X2 X0 X1) \Rightarrow (\forall X3. (m1\_matrix\_1 X3 \\ & (u1\_struct\_0 X1) X0 X0) \Rightarrow ((X3 = k5\_matrix\_6 X0 X1 X2) \Leftrightarrow (r2\_matrix\_6 \\ & X0 X1 X3 X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge \\
& ((\neg v6\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v33\_algstr\_0\ X1) \wedge ( \\
& (v3\_group\_1\ X1) \wedge ((v5\_group\_1\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1 \\
& X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1\ X1) \wedge \\
& (l6\_algstr\_0\ X1)))))))))) \Rightarrow (\forall X2.(m1\_matrix\_1\ X2\ (u1\_struct\_0 \\
& X1)\ X0\ X0) \Rightarrow ((v1\_matrix\_6\ X2\ X0\ X1) \Leftrightarrow (\exists X3.(m1\_matrix\_1\ X3 \\
& (u1\_struct\_0\ X1)\ X0\ X0) \wedge (r2\_matrix\_6\ X0\ X1\ X2\ X3))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge \\
& ((\neg v6\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v33\_algstr\_0\ X1) \wedge ( \\
& (v3\_group\_1\ X1) \wedge ((v5\_group\_1\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1 \\
& X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1\ X1) \wedge \\
& (l6\_algstr\_0\ X1)))))))))) \Rightarrow (\forall X2.(m1\_matrix\_1\ X2\ (u1\_struct\_0 \\
& X1)\ X0\ X0) \Rightarrow (\forall X3.(m1\_matrix\_1\ X3\ (u1\_struct\_0\ X1)\ X0\ X0) \Rightarrow \\
& ((r2\_matrix\_6\ X0\ X1\ X2\ X3) \Leftrightarrow ((k4\_matrix\_3\ X1\ X2\ X3 = k4\_matrix\_3\ X1 \\
& X3\ X2) \wedge (k4\_matrix\_3\ X1\ X2\ X3 = k12\_matrix\_1\ X1\ X0))))))
\end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge \\
& ((\neg v6\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v33\_algstr\_0\ X1) \wedge ( \\
& (v3\_group\_1\ X1) \wedge ((v5\_group\_1\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1 \\
& X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1\ X1) \wedge \\
& (l6\_algstr\_0\ X1)))))))))) \Rightarrow (\forall X2.(m1\_matrix\_1\ X2\ (u1\_struct\_0 \\
& X1)\ X0\ X0) \Rightarrow ((v1\_matrix\_6\ X2\ X0\ X1) \Rightarrow ((v1\_matrix\_6\ (k5\_matrix\_6 \\
& X0\ X1\ X2)\ X0\ X1) \wedge (k5\_matrix\_6\ X0\ X1\ (k5\_matrix\_6\ X0\ X1\ X2) = X2))))))
\end{aligned}$$