

# t24\_laplace (TMH- HyQpm3yiCxfC6QgaQuDaUWvrSsxS9TrY)

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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  $k2\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_laplace : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_matrix\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k2\_laplace : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k5\_numbers : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((\neg v6\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
 & X0) \wedge ((v33\_algstr\_0 X0) \wedge ((v3\_group\_1 X0) \wedge ((v5\_group\_1 X0) \wedge ( \\
 & (v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v4\_vectsp\_1 \\
 & X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow (\forall X1. \\
 & (v7\_ordinal1 X1) \Rightarrow (\forall X2. (m1\_matrix\_1 X2 (u1\_struct\_0 X0) \\
 & X1 X1) \Rightarrow (k12\_matrix\_3 X1 X0 X2 = k12\_matrix\_3 X1 X0 (k5\_matrix\_1 X1 \\
 & (u1\_struct\_0 X0) X2))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge \\ & ((\neg v6\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v33\_algstr\_0\ X1) \wedge \\ & (v3\_group\_1\ X1) \wedge ((v5\_group\_1\ X1) \wedge ((v2\_rlvect\_1\ X1) \wedge ((v3\_rlvect\_1 \\ & X1) \wedge ((v4\_rlvect\_1\ X1) \wedge ((v4\_vectsp\_1\ X1) \wedge ((v5\_vectsp\_1\ X1) \wedge \\ & (l6\_algstr\_0\ X1)))))))))) \Rightarrow (\forall X2.(m1\_matrix\_1\ X2\ (u1\_struct\_0 \\ & X1)\ X0\ X0) \Rightarrow (\forall X3.(v7\_ordinal1\ X3) \Rightarrow (\forall X4.(v7\_ordinal1 \\ & X4) \Rightarrow (((X3 \in k2\_finseq\_1\ X0) \wedge (X4 \in k2\_finseq\_1\ X0)) \Rightarrow (k5\_matrix\_1 \\ & (k7\_nat\_d\ X0\ np\_1)\ (u1\_struct\_0\ X1)\ (k2\_laplace\ X3\ X4\ X0\ X1\ X2) = \\ & k2\_laplace\ X4\ X3\ X0\ X1\ (k5\_matrix\_1\ X0\ (u1\_struct\_0\ X1)\ X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0\ np\_1) \wedge (m2\_subset\_1\ np\_1\ k1\_numbers\ k5\_numbers)) \wedge \\ & ((m1\_subset\_1\ np\_1\ k5\_numbers) \wedge (m1\_subset\_1\ np\_1\ k1\_numbers)) \end{aligned} \quad (3)$$

Assume the following.

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

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_struct\_0\ X0)) \Rightarrow (\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l6\_algstr\_0\ X0) \Rightarrow ((l2\_algstr\_0\ X0) \wedge (l5\_algstr\_0\ X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l2\_struct\_0\ X0) \Rightarrow (l1\_struct\_0\ X0) \quad (7)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0\ X0) \Rightarrow ((l2\_struct\_0\ X0) \wedge (l1\_algstr\_0\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1\ X0) \wedge (v7\_ordinal1\ X1)) \Rightarrow (m1\_subset\_1\ (k7\_nat\_d\ X0\ X1)\ k5\_numbers) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v7\_ordinal1\ X0) \wedge ((\neg v1\_xboole\_0 \\ & X1) \wedge (m1\_matrix\_1\ X2\ X1\ X0\ X0))) \Rightarrow (m1\_matrix\_1\ (k5\_matrix\_1\ X0\ X1 \\ & X2)\ X1\ X0\ X0) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((v7\_ordinal1 \\
& X0) \wedge ((v7\_ordinal1 X1) \wedge ((v7\_ordinal1 X2) \wedge (((\neg v2\_struct\_0 X3) \wedge \\
& ((\neg v6\_struct\_0 X3) \wedge ((v13\_algstr\_0 X3) \wedge ((v33\_algstr\_0 X3) \wedge ( \\
& (v3\_group\_1 X3) \wedge ((v5\_group\_1 X3) \wedge ((v2\_rlvect\_1 X3) \wedge ((v3\_rlvect\_1 \\
& X3) \wedge ((v4\_rlvect\_1 X3) \wedge ((v4\_vectsp\_1 X3) \wedge ((v5\_vectsp\_1 X3) \wedge \\
& (l6\_algstr\_0 X3)))))))))) \wedge (m1\_matrix\_1 X4 (u1\_struct\_0 X3 \\
& X2 X2)))) \Rightarrow (m1\_matrix\_1 (k2\_laplace X0 X1 X2 X3 X4) (u1\_struct\_0 \\
& X3) (k7\_nat\_d X2 np\_1) (k7\_nat\_d X2 np\_1))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (v7\_ordinal1 X0) \Rightarrow (\forall X1. (v7\_ordinal1 X1) \Rightarrow (\forall X2. \\
& (v7\_ordinal1 X2) \Rightarrow (\forall X3. ((\neg v2\_struct\_0 X3) \wedge ((\neg v6\_struct\_0 \\
& X3) \wedge ((v13\_algstr\_0 X3) \wedge ((v33\_algstr\_0 X3) \wedge ((v3\_group\_1 X3) \wedge \\
& ((v5\_group\_1 X3) \wedge ((v2\_rlvect\_1 X3) \wedge ((v3\_rlvect\_1 X3) \wedge ((v4\_rlvect\_1 \\
& X3) \wedge ((v4\_vectsp\_1 X3) \wedge ((v5\_vectsp\_1 X3) \wedge (l6\_algstr\_0 X3)))))))))) \Rightarrow \\
& (\forall X4. (m1\_matrix\_1 X4 (u1\_struct\_0 X3) X2 X2) \Rightarrow (k5\_laplace \\
& X0 X1 X2 X3 X4 = k12\_matrix\_3 (k7\_nat\_d X2 np\_1) X3 (k2\_laplace X0 \\
& X1 X2 X3 X4))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\forall X0. (m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \tag{13}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0. (v7\_ordinal1 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\
& ((\neg v6\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v33\_algstr\_0 X1) \wedge ( \\
& (v3\_group\_1 X1) \wedge ((v5\_group\_1 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 \\
& X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_1 X1) \wedge ((v5\_vectsp\_1 X1) \wedge \\
& (l6\_algstr\_0 X1)))))))))) \Rightarrow (\forall X2. (m1\_matrix\_1 X2 (u1\_struct\_0 \\
& X1) X0 X0) \Rightarrow (\forall X3. (v7\_ordinal1 X3) \Rightarrow (\forall X4. (v7\_ordinal1 \\
& X4) \Rightarrow (((X3 \in k2\_finseq\_1 X0) \wedge (X4 \in k2\_finseq\_1 X0)) \Rightarrow (k5\_laplace \\
& X3 X4 X0 X1 X2 = k5\_laplace X4 X3 X0 X1 (k5\_matrix\_1 X0 (u1\_struct\_0 \\
& X1) X2))))))
\end{aligned}$$