

## t29\_equation

(TMKyMhRqHXWus8GxpA3aDPwGCC6teBBzZbB)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_equation : \iota \Rightarrow \iota$  be given. Let  $k1\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_equation : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l5\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (X0 \in k2\_zfmisc\_1 X1 X2) \Rightarrow ((k1\_xtuple\_0 X0 \in X1) \wedge (k2\_xtuple\_0 X0 \in X2)) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 X0))) \Rightarrow ((v1\_relat\_1 (k4\_equation X0)) \wedge (v2\_relat\_1 (k4\_equation X0)) \wedge (v4\_relat\_1 (k4\_equation X0) (u1\_struct\_0 X0)) \wedge (v1\_funct\_1 (k4\_equation X0)) \wedge (v1\_partfun1 (k4\_equation X0) (u1\_struct\_0 X0)))) \quad (3)$$

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.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge(((v1\_relat\_1 \\ & X1)\wedge((v2\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge((v1\_funct\_1 X1)\wedge( \\ & v1\_partfun1 X1 X0))))))\wedge(m1\_subset\_1 X2 X0)))\Rightarrow(\neg v1\_xboole\_0 ( \\ & k1\_funct\_1 X1 X2)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1\_struct\_0 X0)\wedge(l2\_msualg\_1 X1 X0))\Rightarrow \\ & ((v1\_relat\_1 (u3\_msualg\_1 X0 X1))\wedge((v4\_relat\_1 (u3\_msualg\_1 \\ & X0 X1) (u1\_struct\_0 X0))\wedge((v1\_funct\_1 (u3\_msualg\_1 X0 X1))\wedge(v1\_partfun1 \\ & (u3\_msualg\_1 X0 X1) (u1\_struct\_0 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.(l5\_struct\_0 X0)\Rightarrow(l1\_struct\_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_msualg\_1 X0))\Rightarrow(\forall X1. \\ & (l3\_msualg\_1 X1 X0)\Rightarrow(l2\_msualg\_1 X1 X0)) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(l1\_msualg\_1 X0)\Rightarrow(l5\_struct\_0 X0) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((\neg v11\_struct\_0 X0)\wedge(l1\_msualg\_1 X0)))\Rightarrow(l3\_msualg\_1 (k3\_equation X0) X0) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((\neg v11\_struct\_0 X0)\wedge(l1\_msualg\_1 \\ & X0)))\Rightarrow(k4\_equation X0 = k6\_pboole (u1\_struct\_0 X0) (u3\_msualg\_1 \\ & X0 (k3\_equation X0)) (u3\_msualg\_1 X0 (k3\_equation X0))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge( \\ & (v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0))))\Rightarrow(\forall X2.((v1\_relat\_1 \\ & X2)\wedge((v4\_relat\_1 X2 X0)\wedge((v1\_funct\_1 X2)\wedge(v1\_partfun1 X2 X0))))\Rightarrow \\ & (\forall X3.((v1\_relat\_1 X3)\wedge((v4\_relat\_1 X3 X0)\wedge((v1\_funct\_1 \\ & X3)\wedge(v1\_partfun1 X3 X0))))\Rightarrow((X3 = k6\_pboole X0 X1 X2)\Leftrightarrow(\forall X4. \\ & (X4 \in X0)\Rightarrow(k1\_funct\_1 X3 X4 = k2\_zfmisc\_1 (k1\_funct\_1 X1 X4) (k1\_funct\_1 \\ & X2 X4)))))) \end{aligned} \quad (12)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((\neg v11\_struct\_0 X0)\wedge(l1\_msualg\_1 \\ & X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2. \\ & (m1\_subset\_1 X2 (k1\_funct\_1 (k4\_equation X0) X1))\Rightarrow(k1\_xtuple\_0 \\ & X2 \in k1\_funct\_1 (u3\_msualg\_1 X0 (k3\_equation X0)) X1))) \end{aligned}$$