

# t2\_mboolean (TMXLi- paQWU5XZsCPfYW38VSWE2PsLafWaGP)

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Let  $r6\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_mboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pboole : \iota \Rightarrow \iota$  be given. Let  $k7\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  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  $v2\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. (X1 \in X0) \Rightarrow (k1\_funct\_1 (k2\_funcop\_1 X0 X2) X1 = X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. k1\_funct\_1 (k1\_pboole X1) X0 = k1\_xboole\_0 \quad (2)$$

Assume the following.

$$k1\_zfmisc\_1 k1\_xboole\_0 = k1\_tarski k1\_xboole\_0 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\ & X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0)))) \wedge ((v1\_relat\_1 \\ & X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))))) \Rightarrow \\ & ((r6\_pboole X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. k7\_funcop\_1 X0 X1 = k2\_funcop\_1 X0 X1 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (v1\_relat\_1 (k2\_funcop\_1 X0 X1)) \wedge ((v4\_relat\_1 \\ & (k2\_funcop\_1 X0 X1) X0) \wedge ((v1\_funct\_1 (k2\_funcop\_1 X0 X1)) \wedge (v1\_partfun1 \\ & (k2\_funcop\_1 X0 X1) X0))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge \\ (v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0)))\Rightarrow((v1\_relat\_1 (k1\_mboolean \\ X0 X1))\wedge((v2\_relat\_1 (k1\_mboolean X0 X1))\wedge((v4\_relat\_1 (k1\_mboolean \\ X0 X1) X0)\wedge((v1\_funct\_1 (k1\_mboolean X0 X1))\wedge(v1\_partfun1 (k1\_mboolean \\ X0 X1) X0)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.v4\_relat\_1 (k2\_funcop\_1 X0 X1) X0 \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(v1\_funct\_1 (k7\_funcop\_1 X0 X1))\wedge((v1\_funct\_2 \\ (k7\_funcop\_1 X0 X1) X0 (k1\_tarski X1))\wedge(m1\_subset\_1 (k7\_funcop\_1 \\ X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (k1\_tarski X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1\_relat\_1 (k1\_pboole X0))\wedge((v4\_relat\_1 (k1\_pboole \\ X0) X0)\wedge((v1\_funct\_1 (k1\_pboole X0))\wedge(v1\_partfun1 (k1\_pboole \\ X0) X0))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge \\ (v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0)))\Rightarrow(\forall X2.((v1\_relat\_1 \\ X2)\wedge((v4\_relat\_1 X2 X0)\wedge((v1\_funct\_1 X2)\wedge(v1\_partfun1 X2 X0))))\Rightarrow \\ ((X2 = k1\_mboolean X0 X1)\Leftrightarrow(\forall X3.(X3 \in X0)\Rightarrow(k1\_funct\_1 X2 X3 = \\ k1\_zfmisc\_1 (k1\_funct\_1 X1 X3)))))) \end{aligned} \quad (11)$$

**Theorem 1**

$$\forall X0.r6\_pboole X0 (k1\_mboolean X0 (k1\_pboole X0)) (k7\_funcop\_1 X0 (k1\_tarski k1\_xboole\_0))$$