

# t16\_topreala (TMLB- VGr2C1yL3RAQ14kVBSS8u8Pd5nsQpBa)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_t\_0topsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_reset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k1\_reset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow \\ & ((v3\_funct\_2 X2 X0 X1) \Leftrightarrow ((k2\_reset\_1 X1 X2 = X1) \wedge (v2\_funct\_1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow (((v2\_funct\_1 X2) \wedge (v2\_funct\_2 \\ & X2 (u1\_struct\_0 X1))) \Rightarrow ((v1\_t\_0topsp X2 X0 X1) \Leftrightarrow (v5\_pre\_topc (k2\_tops\_2 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2) X1 X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (3)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (4)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(l1\_struct\_0\ X0) \quad (5)$$

Assume the following.

$$\begin{aligned} &\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(l1\_pre\_topc\ X1)\Rightarrow(\forall X2. \\ &((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0 \\ &X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0 \\ &X0)\ (u1\_struct\_0\ X1))))))\Rightarrow((v3\_tops\_2\ X2\ X0\ X1)\Leftrightarrow((k1\_relset\_1 \\ &(u1\_struct\_0\ X0)\ X2 = k2\_struct\_0\ X0)\wedge((k2\_relset\_1\ (u1\_struct\_0 \\ &X1)\ X2 = k2\_struct\_0\ X1)\wedge((v2\_funct\_1\ X2)\wedge((v5\_pre\_topc\ X2\ X0\ X1)\wedge \\ &(v5\_pre\_topc\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2) \\ &X1\ X0))))))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(k2\_struct\_0\ X0 = u1\_struct\_0\ X0) \quad (7)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ &(k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(((X1\neq k1\_xboole\_0)\Rightarrow((v1\_funct\_2\ X2\ X0 \\ &X1)\Leftrightarrow(X0 = k1\_relset\_1\ X0\ X2)))\wedge((X1 = k1\_xboole\_0)\Rightarrow((v1\_funct\_2 \\ &X2\ X0\ X1)\Leftrightarrow(X2 = k1\_xboole\_0)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge(\neg v1\_xboole\_0\ X1))\Rightarrow \\ &(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow \\ &(((v1\_funct\_1\ X2)\wedge(v1\_funct\_2\ X2\ X0\ X1))\Rightarrow((v1\_funct\_1\ X2)\wedge(( \\ &\neg v1\_xboole\_0\ X2)\wedge(v1\_funct\_2\ X2\ X0\ X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ &(k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(((v1\_funct\_1\ X2)\wedge((v2\_funct\_1\ X2)\wedge(v2\_funct\_2 \\ &X2\ X1)))\Rightarrow((v1\_funct\_1\ X2)\wedge(v3\_funct\_2\ X2\ X0\ X1))) \end{aligned} \quad (10)$$

### Theorem 1

$$\begin{aligned} &\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc \\ &X0)))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_pre\_topc\ X1)\wedge(l1\_pre\_topc \\ &X1)))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0 \\ &X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ &(u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))))))\Rightarrow(((v2\_funct\_1\ X2)\wedge(( \\ &v2\_funct\_2\ X2\ (u1\_struct\_0\ X1))\wedge((v5\_pre\_topc\ X2\ X0\ X1)\wedge(v1\_t\_0topsp \\ &X2\ X0\ X1))))\Rightarrow(v3\_tops\_2\ X2\ X0\ X1)))) \end{aligned}$$