

# t9\_topreala (TMHJTG- naKBPbfJq77bqeLjCFcEbD5sD2EBW)

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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  $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  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  $r1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_t\_0topsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k7\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge \\ & (l1\_pre\_topc X1)) \Rightarrow (\forall X2.((\neg v2\_struct\_0 X2) \wedge (m1\_pre\_topc \\ & X2 X1)) \Rightarrow (\forall X3.(((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X2)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X2)))))) \Rightarrow ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 \\ & X3 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow (\forall X2.(m1\_pre\_topc X2 X0) \Rightarrow ((v3\_pre\_topc \\ & X1 X0) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X2)))) \Rightarrow ((X3 = X1) \Rightarrow (v3\_pre\_topc X3 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((\neg v1\_xboole\_0 X1) \wedge ((\neg v1\_xboole\_0 X3) \wedge (((v1\_funct\_1 X4) \wedge (( \\ & v1\_funct\_2 X4 X0 X1) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \wedge ((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 X2 X3) \wedge (m1\_subset\_1 \\ & X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X2 X3)))))))))) \Rightarrow ((r1\_funct\_2 X0 X1 \\ & X2 X3 X4 X5) \Leftrightarrow (X4 = X5)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(k7\_relset\_1 X0 X1 X2 X3 = k7\_relat\_1 X2 X3) \quad (4)$$

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.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(m1\_pre\_topc X1 X0)\Rightarrow(l1\_pre\_topc X1)) \quad (6)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(m1\_subset\_1 (k7\_relset\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 X1)) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(l1\_pre\_topc X1)\Rightarrow(\forall X2. \\ & ((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1))))))\Rightarrow((v1\_t\_0topsp X2 X0 X1)\Leftrightarrow(\forall X3. \\ & (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow((v3\_pre\_topc \\ & X3 X0)\Rightarrow(v3\_pre\_topc (k7\_relset\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1) X2 X3) X1)))))) \end{aligned} \quad (9)$$

### Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc \\ & X0)))\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge((v2\_pre\_topc X1)\wedge(l1\_pre\_topc \\ & X1)))\Rightarrow(\forall X2.((\neg v2\_struct\_0 X2)\wedge(m1\_pre\_topc X2 X1))\Rightarrow( \\ & \forall X3.((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X1))\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1))))))\Rightarrow(\forall X4.((v1\_funct\_1 \\ & X4)\wedge((v1\_funct\_2 X4 (u1\_struct\_0 X0) (u1\_struct\_0 X2))\wedge(m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X2))))))\Rightarrow \\ & (((r1\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X2) X3 X4)\wedge(v1\_t\_0topsp X3 X0 X1))\Rightarrow(v1\_t\_0topsp \\ & X4 X0 X2)))))) \end{aligned}$$