

## t19\_pzfmisc1

(TMEqdTjVvSt1mGm9sHa7vArpjH5xiWgCQar)

October 27, 2020

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  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $r6\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pzfmisc1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pboole : \iota \Rightarrow \iota$  be given. Let  $k4\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_finset\_1 : \iota \Rightarrow o$  be given. Let  $k7\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (r6\_pboole X0 (k4\_pboole X0 X1 X1) (k1\_pboole X0)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow ((r6\_pboole X0 (k4\_pboole X0 X1 X2) (k1\_pboole X0)) \Leftrightarrow (r2\_pboole X0 X1 X2))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow (((r2\_pboole X0 X1 X2) \wedge (r6\_pboole X0 (k3\_pboole X0 X2 X1) (k1\_pboole X0))) \Rightarrow (r6\_pboole X0 X1 (k1\_pboole X0)))) \quad (3)$$

Assume the following.

$$\forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\neg (v3\_relat\_1 X1) \wedge (v2\_relat\_1 X1))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge(v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0)))\Rightarrow((v3\_relat\_1 X1)\Leftrightarrow(r6\_pboole X0 X1 (k1\_pboole X0))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge(v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0)))\Rightarrow((v1\_relat\_1 (k1\_pzfmisc1 X0 X1))\wedge((v2\_relat\_1 (k1\_pzfmisc1 X0 X1))\wedge((v4\_relat\_1 (k1\_pzfmisc1 X0 X1) X0)\wedge((v1\_funct\_1 (k1\_pzfmisc1 X0 X1))\wedge((v1\_partfun1 (k1\_pzfmisc1 X0 X1) X0)\wedge(v2\_finset\_1 (k1\_pzfmisc1 X0 X1)))))))) \quad (6)$$

Assume the following.

$$\forall X0.k1\_pboole X0 = k7\_funcop\_1 X0 k1\_xboole\_0 \quad (7)$$

**Theorem 1**

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge(v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0)))\Rightarrow(\forall X2.((v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 X0)\wedge((v1\_funct\_1 X2)\wedge(v1\_partfun1 X2 X0))))\Rightarrow(\neg(\neg v1\_xboole\_0 X0)\wedge((r6\_pboole X0 (k3\_pboole X0 (k1\_pzfmisc1 X0 X1) (k1\_pzfmisc1 X0 X2)) (k1\_pboole X0))\wedge(X1 = X2))))$$