

# l15\_msalimit

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October 27, 2020

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  $r3\_pua2mss1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_partfun1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $l5\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $u2\_msualg\_1 : \iota \Rightarrow \iota$  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  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_msualg\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. (v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. r1\_tarski X0 X0 \quad (3)$$

Assume the following.

$$\forall X0. k6\_partfun1 X0 = k4\_relat\_1 X0 \quad (4)$$

Assume the following.

$$\forall X0. k10\_xtuple\_0 (k4\_relat\_1 X0) = X0 \quad (5)$$

Assume the following.

$$\forall X0. k9\_xtuple\_0 (k4\_relat\_1 X0) = X0 \quad (6)$$

Assume the following.

$$v1\_xboole\_0 \ k1\_xboole\_0 \quad (7)$$

Assume the following.

$$\forall X0.((v11\_struct\_0 \ X0) \wedge (l5\_struct\_0 \ X0)) \Rightarrow (v1\_xboole\_0 \ (u4\_struct\_0 \ X0)) \quad (8)$$

Assume the following.

$$\forall X0. \forall X1.((v1\_xboole\_0 \ X0) \wedge (v1\_relat\_1 \ X1)) \Rightarrow ((v1\_xboole\_0 \ (k3\_relat\_1 \ X0 \ X1)) \wedge (v1\_relat\_1 \ (k3\_relat\_1 \ X0 \ X1))) \quad (9)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 \ (k4\_relat\_1 \ X0)) \wedge ((v4\_relat\_1 \ (k4\_relat\_1 \ X0) \ X0) \wedge ((v1\_funct\_1 \ (k4\_relat\_1 \ X0)) \wedge (v1\_partfun1 \ (k4\_relat\_1 \ X0) \ X0))) \quad (10)$$

Assume the following.

$$\forall X0.(l1\_msualg\_1 \ X0) \Rightarrow ((v1\_funct\_1 \ (u2\_msualg\_1 \ X0)) \wedge ((v1\_funct\_2 \ (u2\_msualg\_1 \ X0) \ (u4\_struct\_0 \ X0) \ (u1\_struct\_0 \ X0)) \wedge (m1\_subset\_1 \ (u2\_msualg\_1 \ X0) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (u4\_struct\_0 \ X0) \ (u1\_struct\_0 \ X0)))))) \quad (11)$$

Assume the following.

$$\forall X0.(l1\_msualg\_1 \ X0) \Rightarrow (l5\_struct\_0 \ X0) \quad (12)$$

Assume the following.

$$\forall X0.(v1\_partfun1 \ (k6\_partfun1 \ X0) \ X0) \wedge (m1\_subset\_1 \ (k6\_partfun1 \ X0) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X0))) \quad (13)$$

Assume the following.

$$\forall X0.v1\_relat\_1 \ (k4\_relat\_1 \ X0) \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_msualg\_1 \ X0) \Rightarrow (\forall X1.(l1\_msualg\_1 \ X1) \Rightarrow (\forall X2. \\ & ((v1\_relat\_1 \ X2) \wedge (v1\_funct\_1 \ X2)) \Rightarrow (\forall X3.((v1\_relat\_1 \ X3) \wedge (v1\_funct\_1 \ X3)) \Rightarrow ((r3\_pua2mss1 \ X0 \ X1 \ X2 \ X3) \Leftrightarrow ((k9\_xtuple\_0 \ X2 = u1\_struct\_0 \ X0) \wedge ((k9\_xtuple\_0 \ X3 = u4\_struct\_0 \ X0) \wedge ((r1\_tarski \ (k10\_xtuple\_0 \ X2) \ (u1\_struct\_0 \ X1)) \wedge ((r1\_tarski \ (k10\_xtuple\_0 \ X3) \ (u4\_struct\_0 \ X1)) \wedge ((k3\_relat\_1 \ (u2\_msualg\_1 \ X0) \ X2 = k3\_relat\_1 \ X3 \ (u2\_msualg\_1 \ X1)) \wedge (\forall X4. \forall X5.((v1\_relat\_1 \ X5) \wedge (v1\_funct\_1 \ X5)) \Rightarrow (((X4 \in u4\_struct\_0 \ X0) \wedge (X5 = k1\_funct\_1 \ (u1\_msualg\_1 \ X0) \ X4)) \Rightarrow (k3\_relat\_1 \ X5 \ X2 = k1\_funct\_1 \ (u1\_msualg\_1 \ X1) \ (k1\_funct\_1 \ X3 \ X4)))))))))))))) \quad (15) \end{aligned}$$

Assume the following.

$$\forall X0.\forall X1.(v1\_xboole\_0 X0)\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))\Rightarrow(v1\_xboole\_0 X2)) \quad (16)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow(v1\_relat\_1 X0) \quad (17)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v11\_struct\_0 X0)\wedge(l1\_msualg\_1 X0)))\Rightarrow(r3\_pua2mss1 X0 X0 (k6\_partfun1 (u1\_struct\_0 X0)) (k6\_partfun1 (u4\_struct\_0 X0)))$$