

# l19\_qc\_lang1 (TMP\_rZEFM- fku8HooeGwNuwth5gK5DQkH2xJa)

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Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k8\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_card\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k7\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_finseq\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski X2 X1)) \Rightarrow (r1\_tarski (k2\_xboole\_0 X0 X2) X1) \quad (1)$$

Assume the following.

$$\forall X0. (m1\_qc\_lang1 X0) \Rightarrow (r1\_tarski (k6\_qc\_lang1 X0) (k2\_zfmisc\_1 k5\_numbers (k1\_qc\_lang1 X0))) \quad (2)$$

Assume the following.

$$\forall X0. (m1\_qc\_lang1 X0) \Rightarrow (r1\_tarski (k2\_qc\_lang1 X0) (k2\_zfmisc\_1 k5\_numbers (k1\_qc\_lang1 X0))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ (\forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow (k10\_xtuple\_0 (k7\_finseq\_1 X0 X1) = k2\_xboole\_0 (k10\_xtuple\_0 X0) (k10\_xtuple\_0 X1))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1\_tarski\ X0\ X1)\wedge(r1\_tarski\ X1\ X2))\Rightarrow(r1\_tarski\ X0\ X2) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ X0\ X1)\Leftrightarrow(m1\_subset\_1\ X2\ X1)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0)\Leftrightarrow(m1\_finseq\_1\ X1\ X0) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge(m1\_subset\_1\ X1\ X0))\Rightarrow(k12\_finseq\_1\ X0\ X1 = k5\_finseq\_1\ X1) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k5\_numbers)\wedge(m1\_qc\_lang1\ X1))\Rightarrow(\neg v1\_xboole\_0\ (k8\_qc\_lang1\ X1\ X0)) \quad (10)$$

Assume the following.

$$\forall X0.v1\_finseq\_1\ (k5\_finseq\_1\ X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0)\Rightarrow((v1\_funct\_1\ X1)\wedge((v1\_finseq\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ X0)))))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1\ X1\ X0)\Rightarrow((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1))) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ k5\_numbers))\Rightarrow(m1\_subset\_1\ (k8\_qc\_lang1\ X0\ X1)\ (k1\_zfmisc\_1\ (k6\_qc\_lang1\ X0))) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\wedge((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1))))\Rightarrow((v1\_relat\_1\ (k7\_finseq\_1\ X0\ X1))\wedge((v1\_funct\_1\ (k7\_finseq\_1\ X0\ X1))\wedge(v1\_finseq\_1\ (k7\_finseq\_1\ X0\ X1)))) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge(m1\_subset\_1 X1 X0))\Rightarrow (m2\_finseq\_1 (k12\_finseq\_1 X0 X1) X0) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1)))\Rightarrow((m1\_finseq\_1 X1 X0)\Leftrightarrow(r1\_tarski (k10\_xtuple\_0 X1) X0)) \quad (17)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(v1\_xboole\_0 X1)) \quad (18)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.(m1\_qc\_lang1 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 k5\_numbers)\Rightarrow \\ &(\forall X2.(m2\_subset\_1 X2 (k6\_qc\_lang1 X0) (k8\_qc\_lang1 X0 X1))\Rightarrow \\ &(\forall X3.((v3\_card\_1 X3 X1)\wedge(m2\_finseq\_1 X3 (k2\_qc\_lang1 X0)))\Rightarrow \\ &(m2\_finseq\_1 (k7\_finseq\_1 (k12\_finseq\_1 (k8\_qc\_lang1 X0 X1) X2) \\ &X3) (k2\_zfmisc\_1 k5\_numbers (k1\_qc\_lang1 X0)))))) \end{aligned}$$