

# l15\_convfun1

(TMJgu7rD9bg46UwJ1Bt7YycrTSGC7i8GvyF)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_numbers : \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_convfun1 : \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k12\_supinf\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_extreal1 : \iota \Rightarrow \iota$  be given. Let  $k4\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  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  $k4\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v3\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k18\_rvsum\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $g1\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k35\_binop\_2 : \iota$  be given. Let  $k33\_binop\_2 : \iota$  be given. Let  $v1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_rlvect\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (2)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & (k4\_finseq\_1 X0 = k9\_xtuple\_0 X0) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v3\_valued\_0 X0)))\Rightarrow(k1\_seq\_1 X0 X1 = k1\_funct\_1 X0 X1) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m2\_finseq\_1 X0 k7\_numbers)\Rightarrow(\forall X1.(m2\_finseq\_1 \\ & X1 k1\_numbers)\Rightarrow(((k3\_finseq\_1 X0 = k3\_finseq\_1 X1)\wedge(\forall X2. \\ & (m1\_subset\_1 X2 k5\_numbers)\Rightarrow((X2 \in k4\_finseq\_1 X0)\Rightarrow(k12\_supinf\_2 \\ & X0 X2 = k1\_seq\_1 X1 X2))))\Rightarrow(k4\_extreal1 X0 = k18\_rvsum\_1 X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m2\_finseq\_1 X0 (u1\_struct\_0 k4\_convfun1))\Rightarrow(\forall X1. \\ & (m2\_finseq\_1 X1 k1\_numbers)\Rightarrow(((k3\_finseq\_1 X0 = k3\_finseq\_1 X1)\wedge \\ & (\forall X2.(m1\_subset\_1 X2 k5\_numbers)\Rightarrow((X2 \in k4\_finseq\_1 X0)\Rightarrow \\ & (k1\_funct\_1 X0 X2 = k1\_seq\_1 X1 X2))))\Rightarrow(k4\_rlvect\_1 k4\_convfun1 \\ & X0 = k18\_rvsum\_1 X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1 X1 \\ & X0)\wedge(((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (k2\_zfmisc\_1 X0 X0) X0)\wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0) \\ & X0))))\wedge((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 (k2\_zfmisc\_1 k1\_numbers \\ & X0) X0)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k1\_numbers X0) X0))))))\Rightarrow(\forall X4.\forall X5.\forall X6.\forall X7. \\ & (g1\_rlvect\_1 X0 X1 X2 X3 = g1\_rlvect\_1 X4 X5 X6 X7)\Rightarrow((X0 = X4)\wedge((X1 = \\ & X5)\wedge((X2 = X6)\wedge(X3 = X7)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\neg v1\_finset\_1 k4\_ordinal1 \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m2\_subset\_1 \\ & X2 X0 X1)\Rightarrow(m1\_subset\_1 X2 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 X0)\Rightarrow((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1))) \quad (11)$$

Assume the following.

$$m2\_subset\_1 k6\_numbers k1\_numbers k5\_numbers \quad (12)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (13)$$

Assume the following.

$$\begin{aligned} & (v1\_funct\_1 \ k35\_binop\_2) \wedge ((v1\_funct\_2 \ k35\_binop\_2 \ (k2\_zfmisc\_1 \\ & k1\_numbers \ k1\_numbers) \ k1\_numbers) \wedge (m1\_subset\_1 \ k35\_binop\_2 \\ & (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k1\_numbers \ k1\_numbers) \\ & k1\_numbers)))) \quad (14) \end{aligned}$$

Assume the following.

$$\begin{aligned} & (v1\_funct\_1 \ k33\_binop\_2) \wedge ((v1\_funct\_2 \ k33\_binop\_2 \ (k2\_zfmisc\_1 \\ & k1\_numbers \ k1\_numbers) \ k1\_numbers) \wedge (m1\_subset\_1 \ k33\_binop\_2 \\ & (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k1\_numbers \ k1\_numbers) \\ & k1\_numbers)))) \quad (15) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 \ X1 \\ & X0) \wedge (((v1\_funct\_1 \ X2) \wedge ((v1\_funct\_2 \ X2 \ (k2\_zfmisc\_1 \ X0 \ X0) \ X0) \wedge \\ & (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X0) \\ & X0)))) \wedge ((v1\_funct\_1 \ X3) \wedge ((v1\_funct\_2 \ X3 \ (k2\_zfmisc\_1 \ k1\_numbers \\ & X0) \ X0) \wedge (m1\_subset\_1 \ X3 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ & k1\_numbers \ X0) \ X0)))))) \Rightarrow ((v1\_rlvect\_1 \ (g1\_rlvect\_1 \ X0 \ X1 \ X2 \ X3)) \wedge \\ & (l1\_rlvect\_1 \ (g1\_rlvect\_1 \ X0 \ X1 \ X2 \ X3))) \quad (16) \end{aligned}$$

Assume the following.

$$k4\_convfun1 = g1\_rlvect\_1 \ k1\_numbers \ k6\_numbers \ k33\_binop\_2 \ k35\_binop\_2 \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_finseq\_1 \ X0))) \Rightarrow \\ & (\forall X1. (m2\_subset\_1 \ X1 \ k1\_numbers \ k5\_numbers) \Rightarrow ((X1 = k3\_finseq\_1 \\ & X0) \Leftrightarrow (k2\_finseq\_1 \ X1 = k9\_xtuple\_0 \ X0))) \quad (18) \end{aligned}$$

Assume the following.

$$\forall X0. \forall X1. (m1\_finseq\_1 \ X1 \ X0) \Rightarrow (v5\_relat\_1 \ X1 \ X0) \quad (19)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 \ X0) \wedge (v5\_relat\_1 \ X0 \ k1\_numbers)) \Rightarrow ((v1\_relat\_1 \ X0) \wedge (v3\_valued\_0 \ X0)) \quad (20)$$

Assume the following.

$$\forall X0. (v1\_xboole\_0 \ X0) \Rightarrow (\forall X1. (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0)) \Rightarrow (v1\_xboole\_0 \ X1)) \quad (21)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_finset\_1 X0) \quad (22)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_rlvect\_1 X0) \Rightarrow ((v1\_rlvect\_1 X0) \Rightarrow (X0 = g1\_rlvect\_1 \\ (u1\_struct\_0 X0) (u2\_struct\_0 X0) (u1\_algstr\_0 X0) (u1\_rlvect\_1 \\ X0))) \end{aligned} \quad (23)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.(m2\_finseq\_1 \\ X1 k7\_numbers) \Rightarrow (\forall X2.(m2\_finseq\_1 X2 (u1\_struct\_0 k4\_convfun1)) \Rightarrow \\ (((k3\_finseq\_1 X1 = X0) \wedge ((k3\_finseq\_1 X2 = X0) \wedge (\forall X3.(m1\_subset\_1 \\ X3 k5\_numbers) \Rightarrow ((X3 \in k2\_finseq\_1 X0) \Rightarrow (k12\_supinf\_2 X1 X3 = k1\_funct\_1 \\ X2 X3)))))) \Rightarrow (k4\_extreal1 X1 = k4\_rlvect\_1 k4\_convfun1 X2)))) \end{aligned}$$