

159\_trees\_3 (TM-  
cDQNksVjQe9S6fAF14DbZxEbKiMv647DP)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  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  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k1\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $np\_0 : \iota$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\neg(\neg r1\_xxreal\_0 X0 X1) \wedge ((\neg v3\_xxreal\_0 X1) \wedge (\neg v2\_xxreal\_0 X0)))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow ((X1 \in k1\_relset\_1 k5\_numbers X0) \Leftrightarrow ((r1\_xxreal\_0 np\_1 X1) \wedge (r1\_xxreal\_0 X1 (k3\_finseq\_1 X0)))) \quad (4)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow ((\neg r1\_xxreal\_0 (k1\_nat\_1 X1 np\_1) X0) \Leftrightarrow (r1\_xxreal\_0 X0 X1))) \quad (5)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_1) \wedge (m2\_subset\_1 \ np\_1 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_1 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_1 \ k1\_numbers)) \end{aligned} \quad (6)$$

Assume the following.

$$(m2\_subset\_1 \ np\_0 \ k1\_numbers \ k5\_numbers) \wedge ((m1\_subset\_1 \ np\_0 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_0 \ k1\_numbers)) \quad (7)$$

Assume the following.

$$v1\_xboole\_0 \ np\_0 \quad (8)$$

Assume the following.

$$k2\_xcmplx\_0 \ np\_0 \ np\_1 = np\_1 \quad (9)$$

Assume the following.

$$k2\_xcmplx\_0 \ np\_0 \ np\_0 = np\_0 \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge ((\neg v1\_xboole\_0 \ X1) \wedge \\ & (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & \ X2 \ X0 \ X1) \Leftrightarrow (m1\_subset\_1 \ X2 \ X1)) \end{aligned} \quad (11)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. ((m1\_subset\_1 \ X0 \ k5\_numbers) \wedge (v7\_ordinal1 \ X1)) \Rightarrow (k2\_nat\_1 \ X0 \ X1 = k2\_xcmplx\_0 \ X0 \ X1) \quad (13)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 \ X1) \wedge (v4\_relat\_1 \ X1 \ X0)) \Rightarrow (k1\_relset\_1 \ X0 \ X1 = k9\_xtuple\_0 \ X1) \quad (14)$$

Assume the following.

$$\forall X0. \forall X1. ((v7\_ordinal1 \ X0) \wedge (m1\_subset\_1 \ X1 \ k5\_numbers)) \Rightarrow (k1\_nat\_1 \ X0 \ X1 = k2\_xcmplx\_0 \ X0 \ X1) \quad (15)$$

Assume the following.

$$(\neg v1\_xboole\_0 \ k4\_ordinal1) \wedge (v3\_ordinal1 \ k4\_ordinal1) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1\ X0)\wedge(v7\_ordinal1\ X1))\Rightarrow(v7\_ordinal1\ (k2\_xcmplx\_0\ X0\ X1)) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.(((v2\_xxreal\_0\ X0)\wedge(v1\_xreal\_0\ X0))\wedge(\neg v3\_xxreal\_0\ X1)\wedge(v1\_xreal\_0\ X1))\Rightarrow(v2\_xxreal\_0\ (k2\_xcmplx\_0\ X1\ X0)) \quad (18)$$

Assume the following.

$$m1\_subset\_1\ k5\_numbers\ (k1\_zfmisc\_1\ k1\_numbers) \quad (19)$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow(m2\_subset\_1\ (k3\_finseq\_1\ X0)\ k1\_numbers\ k5\_numbers) \quad (20)$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge(v1\_funct\_1\ X0))\Rightarrow(\forall X1.(X1 = k10\_xtuple\_0\ X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow(\exists X3.(X3 \in k9\_xtuple\_0\ X0)\wedge(X2 = k1\_funct\_1\ X0\ X3)))) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k5\_numbers)\wedge(v7\_ordinal1\ X1))\Rightarrow(k2\_nat\_1\ X0\ X1 = k2\_nat\_1\ X1\ X0) \quad (22)$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k4\_ordinal1)\Rightarrow(v7\_ordinal1\ X0) \quad (23)$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow((v1\_relat\_1\ X0)\wedge((v4\_relat\_1\ X0\ k5\_numbers)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))) \quad (24)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0\ X0)\Rightarrow(v1\_xxreal\_0\ X0) \quad (25)$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0\ X0)\wedge(v2\_xxreal\_0\ X0))\Rightarrow((\neg v1\_xboole\_0\ X0)\wedge((v1\_xxreal\_0\ X0)\wedge(\neg v3\_xxreal\_0\ X0))) \quad (26)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\neg v3\_xreal\_0 X0) \quad (27)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xreal\_0 X0) \quad (28)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (29)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.((v1\_relat\_1 \\ & X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow ((\neg r1\_xreal\_0 (k3\_finseq\_1 \\ & X1) X0) \Rightarrow ((k2\_nat\_1 X0 np\_1 \in k1\_relset\_1 k5\_numbers X1) \wedge (k1\_funct\_1 \\ & X1 (k2\_nat\_1 X0 np\_1) \in k10\_xtuple\_0 X1)))) \end{aligned}$$