

t11\_exchsort  
(TMP2QsvHa4UBrnHDisrnaqtPsY9dcZYD7WL)

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Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v3\_exchsort : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_exchsort : \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k6\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k2\_ordinal2 : \iota \Rightarrow \iota$  be given. Let  $k3\_ordinal2 : \iota \Rightarrow \iota$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_ordinal6 : \iota \Rightarrow o$  be given. Let  $v2\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

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

Assume the following.

$$\begin{aligned} \forall X0. (v3\_ordinal1 X0) \Rightarrow (\forall X1. (v3\_ordinal1 X1) \Rightarrow (( \\ k6\_subset\_1 X0 X1 \neq k1\_xboole\_0) \Rightarrow ((k2\_ordinal2 (k6\_subset\_1 X0 \\ X1) = X1) \wedge ((k3\_ordinal2 (k6\_subset\_1 X0 X1) = X0) \wedge (k3\_tarski (k6\_subset\_1 \\ X0 X1) = k3\_tarski X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. (v3\_ordinal1 X0) \Rightarrow (\forall X1. (v3\_ordinal1 X1) \Rightarrow (\forall X2. \\ (X2 \in k6\_subset\_1 X0 X1) \Leftrightarrow ((r1\_tarski X1 X2) \wedge (X2 \in X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (k4\_xboole\_0 X0 X1 = k1\_xboole\_0) \Leftrightarrow (r1\_tarski X0 X1) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (6)$$

Assume the following.

$$\forall X0.(v1\_ordinal1\ X0)\Rightarrow(\forall X1.(v3\_ordinal1\ X1)\Rightarrow(\forall X2.(v3\_ordinal1\ X2)\Rightarrow(((r1\_tarski\ X0\ X1)\wedge(X1\in X2))\Rightarrow(X0\in X2))))\quad (7)$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski\ X0\ X0\quad (8)$$

Assume the following.

$$\forall X0.\forall X1.k6\_subset\_1\ X0\ X1 = k4\_xboole\_0\ X0\ X1\quad (9)$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0\ X0)\wedge(v1\_relat\_1\ X0))\Rightarrow(\neg v1\_xboole\_0\ (k9\_xtuple\_0\ X0))\quad (10)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(v1\_xboole\_0\ (k9\_xtuple\_0\ X0))\quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v3\_ordinal1\ X0)\wedge(v3\_ordinal1\ X1))\Rightarrow(v1\_ordinal6\ (k4\_xboole\_0\ X0\ X1))\quad (12)$$

Assume the following.

$$v1\_xboole\_0\ k1\_xboole\_0\quad (13)$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1\ X1\ X0\quad (14)$$

Assume the following.

$$\forall X0.v3\_ordinal1\ (k3\_ordinal2\ X0)\quad (15)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0)\Rightarrow(\forall X1.(v3\_exhsort\ X1\ X0)\Leftrightarrow(X0 = k3\_ordinal2\ (k9\_xtuple\_0\ X1)))\quad (16)$$

Assume the following.

$$\forall X0.(v1\_exhsort\ X0)\Leftrightarrow(\exists X1.(v3\_ordinal1\ X1)\wedge(\exists X2.(v3\_ordinal1\ X2)\wedge(k9\_xtuple\_0\ X0 = k6\_subset\_1\ X1\ X2)))\quad (17)$$

Assume the following.

$$\forall X0.(v1\_ordinal6\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ X0)\Rightarrow(v3\_ordinal1\ X1))\quad (18)$$

Assume the following.

$$\forall X0.(v3\_ordinal1\ X0)\Rightarrow((v1\_ordinal1\ X0)\wedge(v2\_ordinal1\ X0))\quad (19)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge (v1\_funct\_1 \\ X1)) \Rightarrow (((v3\_exhsort\ X1\ X0) \wedge (\neg v1\_xboole\_0\ X1) \wedge (v1\_exhsort \\ X1))) \Leftrightarrow (\exists X2.(v3\_ordinal1\ X2) \wedge ((k9\_xtuple\_0\ X1 = k6\_subset\_1 \\ X0\ X2) \wedge (X2 \in X0)))))) \end{aligned}$$