t43_exchsort (TMQHJ323V9FJxgLXMyb5rDfCdG3SfHXzyaB)

October 27, 2020

Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_exchsort : \iota \Rightarrow o$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $m1\_exchsort : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_funct\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $k2\_funct\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_exchsort\ X0))) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_exchsort\ X1))) \Rightarrow ((m1\_exchsort\ X0\ X1) \Rightarrow (m1\_exchsort\ X1\ X0))) \tag{1}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1.\forall X2.\neg(X1 \in k9\_xtuple\_0\ X0) \wedge ((X2 \in k9\_xtuple\_0\ X0) \wedge (\forall X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k9\_xtuple\_0\ X0)\ (k9\_xtuple\_0\ X0)) \wedge ((v3\_funct\_2\ X3\ (k9\_xtuple\_0\ X0)\ (k9\_xtuple\_0\ X0)) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_xtuple\_0\ X0)\ (k9\_xtuple\_0\ X0)))))))) \Rightarrow (k2\_funct\_7\ (k2\_funct\_7\ X0\ X1\ (k1\_funct\_1\ X0\ X2))\ X2\ (k1\_funct\_1\ X0\ X1) \neq k3\_relat\_1\ X3\ X0))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow ((v1\_relat\_1\ (k10\_funct\_7\ X0\ X1\ X2)) \wedge (v1\_funct\_1\ (k10\_funct\_7\ X0\ X1\ X2))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_exchsort\ X0))) \Rightarrow (v1\_exchsort\ (k10\_funct\_7\ X0\ X1\ X2)) \tag{4}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_exchsort\ X0)))\Rightarrow (\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_exchsort\ X1)))\Rightarrow((m1\_exchsort\ X1\ X0)\Leftrightarrow(\exists X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k9\_xtuple\_0\ X0)\ (k9\_xtuple\_0\ X0))\wedge((v3\_funct\_2\ X2\ (k9\_xtuple\_0\ X0)\ (k9\_xtuple\_0\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_xtuple\_0\ X0)\ (k9\_xtuple\_0\ X0)))))))\wedge(X1 = k3\_relat\_1\ X2\ X0))))) \tag{5}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge(v1\_funct\_1\ X0))\Rightarrow(\forall X1.\forall X2.(((X1 \in k9\_xtuple\_0\ X0)\wedge(X2 \in k9\_xtuple\_0\ X0))\Rightarrow(k10\_funct\_7\ X0\ X1\ X2 = k2\_funct\_7\ (k2\_funct\_7\ X0\ X1\ (k1\_funct\_1\ X0\ X2))\ X2\ (k1\_funct\_1\ X0\ X1)))\wedge((\neg(X1 \in k9\_xtuple\_0\ X0)\wedge(X2 \in k9\_xtuple\_0\ X0))\Rightarrow(k10\_funct\_7\ X0\ X1\ X2 = X0))) \tag{6}$$

Theorem 1

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge(v1\_exchsort\ X2)))\Rightarrow(((X0 \in k9\_xtuple\_0\ X2)\wedge(X1 \in k9\_xtuple\_0\ X2))\Rightarrow((m1\_exchsort\ (k10\_funct\_7\ X2\ X0\ X1)\ X2)\wedge(m1\_exchsort\ X2\ (k10\_funct\_7\ X2\ X0\ X1))))$$