

# t11\_algspec1

## (TMURefyKyJ8zmUJu4e3uSpMssJMQ6hsgS2v)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $r6\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_algspec1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 \\ & X2)) \Rightarrow ((X1 \in X0) \Rightarrow (((X1 \in k9\_xtuple\_0 X2) \Rightarrow (k1\_funct\_1 (k1\_algspec1 \\ & X0 X2) X1 = k1\_funct\_1 X2 X1)) \wedge ((\neg X1 \in k9\_xtuple\_0 X2) \Rightarrow (k1\_funct\_1 \\ & (k1\_algspec1 X0 X2) X1 = X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ( \\ & v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1\_relat\_1 \\ & X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow \\ & ((\forall X3. (X3 \in X0) \Rightarrow (k1\_funct\_1 X1 X3 = k1\_funct\_1 X2 X3)) \Rightarrow (X1 = \\ & X2))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\ & X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0)))) \wedge ((v1\_relat\_1 \\ & X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow \\ & (r6\_pboole X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)) \Rightarrow ( \\ & k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))\Rightarrow((v1\_relat\_1 \\ (k1\_algspec1 X0 X1))\wedge((v4\_relat\_1 (k1\_algspec1 X0 X1) X0)\wedge((v1\_funct\_1 \\ (k1\_algspec1 X0 X1))\wedge(v1\_partfun1 (k1\_algspec1 X0 X1) X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 X0))\Rightarrow( \\ (v1\_partfun1 X1 X0)\Leftrightarrow(k1\_relset\_1 X0 X1 = X0)) \end{aligned} \quad (6)$$

**Theorem 1**

$$\begin{aligned} \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))\Rightarrow(r6\_pboole \\ X0 (k1\_algspec1 X0 (k1\_algspec1 X0 X1)) (k1\_algspec1 X0 X1)) \end{aligned}$$