

t19\_algspec1  
(TMVr9Rdjuj5kEDH9WXGUdmGiMomkKNYUd4C)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $r1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_algspec1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. r1\_tarski X0 (k2\_xboole\_0 X0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (v1\_relat\_1 X1) \Rightarrow (r1\_tarski (k5\_relat\_1 X1 X0) X1) \quad (2)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((r1\_partfun1 X0 X1) \Leftrightarrow (\exists X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \wedge ((r1\_tarski X0 X2) \wedge (r1\_tarski X1 X2))))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((r1\_tarski X0 X1) \Rightarrow (k5\_relat\_1 (k1\_algspec1 X1 X2) X0 = k1\_algspec1 X0 X2)) \quad (4)$$

Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \quad (6)$$

**Theorem 1**

$$\forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow (r1\_partfun1 (k1\_algspec1 X0 X2) (k1\_algspec1 X1 X2))$$