

# t49\_pboole (TM- Rxbv9B4DQBeMFKQbaJ7REYMb8vrLffpeq)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r6\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pboole : \iota \Rightarrow \iota$  be given. Let  $r2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (r2\_pboole X0 (k1\_pboole X0) X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow ((r2\_pboole X0 X1 X2) \Rightarrow (r6\_pboole X0 (k3\_pboole X0 X1 X2) X1))) \quad (2)$$

Assume the following.

$$\forall X0. (v1\_relat\_1 (k1\_pboole X0)) \wedge ((v4\_relat\_1 (k1\_pboole X0) X0) \wedge ((v1\_funct\_1 (k1\_pboole X0)) \wedge (v1\_partfun1 (k1\_pboole X0) X0))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0)))) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0))))) \Rightarrow (k3\_pboole X0 X1 X2 = k3\_pboole X0 X2 X1) \quad (4)$$

## Theorem 1

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (r6\_pboole X0 (k3\_pboole X0 X1 (k1\_pboole X0)) (k1\_pboole X0))$$