t11_pboole (TMRXUcc-TYTweVJ8raweX5KqVcZZFW64Zwz4)

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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 $r4\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ X0) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_partfun1\ X1\ X0)))) \wedge ((v1\_relat\_1\ X2) \wedge ((v4\_relat\_1\ X2\ X0) \wedge ((v1\_funct\_1\ X2) \wedge (v1\_partfun1\ X2\ X0))))) \Rightarrow ((r4\_pboole\ X0\ X1\ X2) \Rightarrow (r4\_pboole\ X0\ X2\ X1)) \tag{1}$$

Assume the following.

$$\forall X0 : \iota \Rightarrow \iota.\forall X1.(\forall X2.\neg(X2 \in X1) \wedge (X0\ X2 = k1\_xboole\_0)) \Rightarrow (\exists X2.((v1\_relat\_1\ X2) \wedge ((v4\_relat\_1\ X2\ X1) \wedge ((v1\_funct\_1\ X2) \wedge (v1\_partfun1\ X2\ X1)))) \wedge (\forall X3.(X3 \in X1) \Rightarrow (k1\_funct\_1\ X2\ X3 \in X0\ X3))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(r1\_xboole\_0\ X0\ X1) \Leftrightarrow (k3\_xboole\_0\ X0\ X1 = k1\_xboole\_0) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ X0) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_partfun1\ X1\ X0)))) \Rightarrow (\forall X2.((v1\_relat\_1\ X2) \wedge ((v4\_relat\_1\ X2\ X0) \wedge ((v1\_funct\_1\ X2) \wedge (v1\_partfun1\ X2\ X0)))) \Rightarrow ((r4\_pboole\ X0\ X1\ X2) \Leftrightarrow (\forall X3.\neg(X3 \in X0) \wedge (r1\_xboole\_0\ (k1\_funct\_1\ X1\ X3)\ (k1\_funct\_1\ X2\ X3))))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k3\_xboole\_0\ X0\ X1) \Leftrightarrow (\forall X3.(X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\Rightarrow((r1\_pboole\ X0\ X1\ X2)\Leftrightarrow(\forall X3.(X3\in X0)\Rightarrow(k1\_funct\_1\ X1\ X3\in k1\_funct\_1\ X2\ X3)))) \tag{6}$$

Theorem 1

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\Rightarrow(\neg(r4\_pboole\ X0\ X1\ X2)\wedge(\forall X3.((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0))))\Rightarrow(\neg(r1\_pboole\ X0\ X3\ X1)\wedge(r1\_pboole\ X0\ X3\ X2)))))$$