t21_ndiff_4 (TMWJcWZG18Lj4TG5vqecntfN1JPNwFoNhay)

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Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_numbers : \iota$ be given. Let $k5\_numbers : \iota$ be given. Let $v3\_rcomp\_1 : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_euclid : \iota \Rightarrow \iota$ be given. Let $r2\_ndiff\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_ndiff\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v1\_xboole\_0\ X0) \wedge (m2\_subset\_1\ X0\ k1\_numbers\ k5\_numbers)) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ k1\_numbers)) \Rightarrow (\forall X2.((v1\_funct\_1\ X2) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ (k1\_euclid\ X0))))) \Rightarrow ((r2\_ndiff\_4\ X0\ X2\ X1) \Rightarrow (v3\_rcomp\_1\ X1)))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0\ X0) \wedge (m2\_subset\_1\ X0\ k1\_numbers\ k5\_numbers)) \Rightarrow (\forall X1.((v3\_rcomp\_1\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ k1\_numbers))) \Rightarrow (\forall X2.((v1\_funct\_1\ X2) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ (k1\_euclid\ X0))))) \Rightarrow ((r2\_ndiff\_4\ X0\ X2\ X1) \Leftrightarrow ((r1\_tarski\ X1\ (k1\_relset\_1\ k1\_numbers\ X2)) \wedge (\forall X3.(m1\_subset\_1\ X3\ k1\_numbers) \Rightarrow ((X3 \in X1) \Rightarrow (r1\_ndiff\_4\ X0\ X2\ X3))))))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X1) \wedge (m2\_subset\_1\ X1\ k1\_numbers\ k5\_numbers)) \Rightarrow (\forall X2.((v1\_funct\_1\ X2) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ (k1\_euclid\ X1))))) \Rightarrow ((r2\_ndiff\_4\ X1\ X2\ X0) \Rightarrow (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ k1\_numbers)))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1\_tarski\ X0\ X1) \wedge (r1\_tarski\ X1\ X2)) \Rightarrow (r1\_tarski\ X0\ X2) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski\ X0\ X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow (X2 \in X1)) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0\ X0)\wedge(m2\_subset\_1\ X0\ k1\_numbers\ k5\_numbers))\Rightarrow (\forall X1.((v1\_funct\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ (k1\_euclid\ X0)))))\Rightarrow(\forall X2.(r2\_ndiff\_4\ X0\ X1\ X2)\Leftrightarrow ((r1\_tarski\ X2\ (k1\_relset\_1\ k1\_numbers\ X1))\wedge(\forall X3.(m1\_subset\_1\ X3\ k1\_numbers)\Rightarrow((X3 \in X2)\Rightarrow(r1\_ndiff\_4\ X0\ (k2\_partfun1\ k1\_numbers\ (k1\_euclid\ X0)\ X1\ X2)\ X3)))))) \tag{6}$$

Theorem 1

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X1)\wedge(m2\_subset\_1\ X1\ k1\_numbers\ k5\_numbers))\Rightarrow(\forall X2.((v3\_rcomp\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ k1\_numbers)))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ (k1\_euclid\ X1)))))\Rightarrow((r2\_ndiff\_4\ X1\ X3\ X0)\wedge(r1\_tarski\ X2\ X0))\Rightarrow(r2\_ndiff\_4\ X1\ X3\ X2))))$$