

## t15\_pdiff\_3

(TMJipfnfJYMN2x8ckimkjYCxVCbNRsLBvYn)

October 27, 2020

Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k1\_euclid : \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r3\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pdiff\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_rcomp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_fdiff\_1 : \iota \Rightarrow o$  be given. Let  $v2\_fdiff\_1 : \iota \Rightarrow o$  be given. Let  $k9\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 k1\_numbers) \Rightarrow (\forall X2.(m2\_finseq\_2 X2 k1\_numbers (k1\_euclid \\ & np\_2)) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k1\_euclid np\_2) k1\_numbers)))) \Rightarrow (((X2 = k10\_finseq\_1 \\ & X0 X1) \wedge (r3\_pdiff\_3 X3 X2)) \Rightarrow (k4\_pdiff\_3 X3 X2 = k1\_fdiff\_1 (k1\_pdiff\_2 \\ & np\_2 np\_1 (k1\_pdiff\_3 np\_2 np\_2 X3) X2) X0)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (k1\_euclid np\_2) k1\_numbers)))) \Rightarrow (\forall X1.(m2\_finseq\_2 X1 \\ & k1\_numbers (k1\_euclid np\_2)) \Rightarrow ((\exists X2.(m1\_subset\_1 X2 k1\_numbers) \wedge \\ & (\exists X3.(m1\_subset\_1 X3 k1\_numbers) \wedge ((X1 = k10\_finseq\_1 X2 \\ & X3) \wedge (r1\_fdiff\_1 (k1\_pdiff\_2 np\_2 np\_1 X0 X1) X2)))) \Leftrightarrow (r3\_pdiff\_1 \\ & np\_2 np\_1 X0 X1))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 k1\_numbers) \Rightarrow (\forall X2.(m2\_finseq\_2 X2 k1\_numbers (k1\_euclid \\ & np\_2)) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k1\_euclid np\_2) k1\_numbers)))) \Rightarrow (((X2 = k10\_finseq\_1 \\ & X0 X1) \wedge (r3\_pdiff\_3 X3 X2)) \Rightarrow (r1\_fdiff\_1 (k1\_pdiff\_2 np\_2 np\_1 \\ & (k1\_pdiff\_3 np\_2 np\_2 X3) X2) X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 k1\_numbers) \Rightarrow (\forall X2.(m2\_finseq\_2 X2 k1\_numbers (k1\_euclid \\ & np\_2)) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k1\_euclid np\_2) k1\_numbers)))) \Rightarrow (((X2 = k10\_finseq\_1 \\ & X0 X1) \wedge (r3\_pdiff\_1 np\_2 np\_1 X3 X2)) \Rightarrow (k11\_pdiff\_1 np\_2 np\_1 \\ & X3 X2 = k1\_fdiff\_1 (k1\_pdiff\_2 np\_2 np\_1 X3 X2) X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_2) \wedge (m2\_subset\_1 np\_2 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_2 k5\_numbers) \wedge (m1\_subset\_1 np\_2 k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\neg v1\_xboole\_0 np\_2 \quad (6)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1\_subset\_1 X0 k5\_numbers) \wedge \\ & (((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 k5\_numbers)) \wedge ((v1\_funct\_1 \\ & X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X1) \\ & k1\_numbers)))))) \Rightarrow ((v1\_funct\_1 (k1\_pdiff\_3 X0 X1 X2)) \wedge ((v1\_funct\_2 \\ & (k1\_pdiff\_3 X0 X1 X2) (k1\_euclid X1) k1\_numbers) \wedge (m1\_subset\_1 \\ & (k1\_pdiff\_3 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X1) \\ & k1\_numbers)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& \quad (k1\_euclid\ np\_2) k1\_numbers)))) \Rightarrow (\forall X1.(m2\_finseq\_2 X1 \\
& \quad k1\_numbers (k1\_euclid\ np\_2)) \Rightarrow ((r3\_pdiff\_3 X0 X1) \Leftrightarrow (\exists X2. \\
& \quad (m1\_subset\_1 X2 k1\_numbers) \wedge (\exists X3.(m1\_subset\_1 X3 k1\_numbers) \wedge \\
& \quad ((X1 = k10\_finseq\_1 X2 X3) \wedge (\exists X4.(m1\_rcomp\_1 X4 X2) \wedge ((r1\_tarski \\
& \quad X4 (k1\_relset\_1 k1\_numbers (k1\_pdiff\_2\ np\_2\ np\_1) (k1\_pdiff\_3 \\
& \quad np\_2\ np\_2 X0) X1))) \wedge (\exists X5.((v1\_funct\_1 X5) \wedge ((v3\_fdiff\_1 \\
& \quad X5) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))))) \wedge \\
& \quad (\exists X6.((v1\_funct\_1 X6) \wedge ((v2\_fdiff\_1 X6) \wedge (m1\_subset\_1 \\
& \quad X6 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))))) \wedge (\forall X7. \\
& \quad (m1\_subset\_1 X7 k1\_numbers) \Rightarrow ((X7 \in X4) \Rightarrow (k9\_real\_1 (k1\_seq\_1 ( \\
& \quad k1\_pdiff\_2\ np\_2\ np\_1) (k1\_pdiff\_3\ np\_2\ np\_2 X0) X1) X7) (k1\_seq\_1 \\
& \quad (k1\_pdiff\_2\ np\_2\ np\_1) (k1\_pdiff\_3\ np\_2\ np\_2 X0) X1) X2) = k7\_real\_1 \\
& \quad (k1\_seq\_1 X5 (k9\_real\_1 X7 X2)) (k1\_seq\_1 X6 (k9\_real\_1 X7 X2))))))))) \wedge \\
& \quad (9)
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(m2\_finseq\_2 X0 k1\_numbers (k1\_euclid\ np\_2)) \Rightarrow (\forall X1. \\
& \quad ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\
& \quad k1\_euclid\ np\_2) k1\_numbers)))) \Rightarrow ((r3\_pdiff\_3 X1 X0) \Rightarrow (k4\_pdiff\_3 \\
& \quad X1 X0 = k11\_pdiff\_1\ np\_2\ np\_1) (k1\_pdiff\_3\ np\_2\ np\_2 X1) X0))
\end{aligned}$$