

## t32\_chain\_1

(TMM4e9TJdBmhdqeicusmL17rS2ti64NzaLc)

October 27, 2020

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  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_chain\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_euclid : \iota \Rightarrow \iota$  be given. Let  $k4\_chain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_chain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_chain\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_chain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\
& (\forall X1. (m1\_chain\_1 X1 X0) \Rightarrow (\forall X2. (m2\_subset\_1 X2 k1\_numbers \\
& k5\_numbers) \Rightarrow ((r1\_xxreal\_0 X2 X0) \Rightarrow (k4\_chain\_1 X0 X1 X2 = ReplSep2 \\
& (toset (\lambda X3 : \iota. m2\_finseq\_2 X3 k1\_numbers (k1\_euclid X0))) \\
& (\lambda X3 : \iota. toset (\lambda X4 : \iota. m2\_finseq\_2 X4 k1\_numbers (k1\_euclid \\
& X0)))) (\lambda X3 : \iota. \lambda X4 : \iota. \neg (\forall X5. (m1\_subset\_1 X5 ( \\
& k1\_zfmisc\_1 (k2\_finseq\_1 X0)))) \Rightarrow (\neg (k5\_card\_1 X5 = X2) \wedge (\forall X6. \\
& (m2\_subset\_1 X6 k5\_numbers (k2\_finseq\_1 X0)) \Rightarrow (((X6 \in X5) \wedge (\neg r1\_xxreal\_0 \\
& (k1\_seq\_1 X4 X6) (k1\_seq\_1 X3 X6)) \wedge (m2\_chain\_1 (k1\_domain\_1 k1\_numbers \\
& k1\_numbers (k1\_seq\_1 X3 X6) (k1\_seq\_1 X4 X6)) (k2\_chain\_1 X0 X1 X6)))))) \vee \\
& ((\neg X6 \in X5) \wedge ((k1\_seq\_1 X3 X6 = k1\_seq\_1 X4 X6) \wedge (k1\_seq\_1 X3 X6 \in k2\_chain\_1 \\
& X0 X1 X6)))))) \wedge (\neg (X2 = X0) \wedge (\forall X5. (m2\_subset\_1 X5 k5\_numbers \\
& (k2\_finseq\_1 X0)) \Rightarrow ((\neg r1\_xxreal\_0 (k1\_seq\_1 X3 X5) (k1\_seq\_1 X4 \\
& X5)) \wedge (m2\_chain\_1 (k1\_domain\_1 k1\_numbers k1\_numbers (k1\_seq\_1 \\
& X3 X5) (k1\_seq\_1 X4 X5)) (k2\_chain\_1 X0 X1 X5)))))) (\lambda X3 : \iota. \\
& \lambda X4 : \iota. k3\_chain\_1 X0 X3 X4))))))
\end{aligned} \tag{1}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (m2\_subset\_1 X1 k1\_numbers k5\_numbers)) \Rightarrow \\ & (\forall X2.(m1\_chain\_1 X2 X1) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k1\_euclid X1))) \Rightarrow ((X3 \in k4\_chain\_1 \\ & X1 X2 X0) \Leftrightarrow (\exists X4.(m2\_finseq\_2 X4 k1\_numbers (k1\_euclid X1)) \wedge \\ & (\exists X5.(m2\_finseq\_2 X5 k1\_numbers (k1\_euclid X1)) \wedge (X3 = \\ & k3\_chain\_1 X1 X4 X5) \wedge (\neg (\forall X6.(m1\_subset\_1 X6 (k1\_zfmisc\_1 \\ & (k2\_finseq\_1 X1))) \Rightarrow (\neg (k5\_card\_1 X6 = X0) \wedge (\forall X7.(m2\_subset\_1 \\ & X7 k5\_numbers (k2\_finseq\_1 X1)) \Rightarrow (((X7 \in X6) \wedge (\neg r1\_xxreal\_0 (k1\_seq\_1 \\ & X5 X7) (k1\_seq\_1 X4 X7)) \wedge (m2\_chain\_1 (k1\_domain\_1 k1\_numbers k1\_numbers \\ & (k1\_seq\_1 X4 X7) (k1\_seq\_1 X5 X7)) (k2\_chain\_1 X1 X2 X7)))))) \vee ((\neg X7 \in \\ & X6) \wedge ((k1\_seq\_1 X4 X7 = k1\_seq\_1 X5 X7) \wedge (k1\_seq\_1 X4 X7 \in k2\_chain\_1 \\ & X1 X2 X7)))))) \wedge (\neg (X0 = X1) \wedge (\forall X6.(m2\_subset\_1 X6 k5\_numbers \\ & (k2\_finseq\_1 X1) \Rightarrow ((\neg r1\_xxreal\_0 (k1\_seq\_1 X4 X6) (k1\_seq\_1 X5 \\ & X6)) \wedge (m2\_chain\_1 (k1\_domain\_1 k1\_numbers k1\_numbers (k1\_seq\_1 \\ & X4 X6) (k1\_seq\_1 X5 X6)) (k2\_chain\_1 X1 X2 X6)))))))))) \end{aligned}$$