

## t23\_chain\_1

(TMZ5Xu8DNm5nq8HhAwz5sQyNbvXiSJFvp19)

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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  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_euclid : \iota \Rightarrow \iota$  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  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

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

### Theorem 1

$$\begin{aligned}
 & \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\
 & \quad (\forall X1. (m2\_finseq\_2 X1 k1\_numbers (k1\_euclid X0)) \Rightarrow (\forall X2. \\
 & \quad (m2\_finseq\_2 X2 k1\_numbers (k1\_euclid X0)) \Rightarrow (\forall X3. (m2\_finseq\_2 \\
 & X3 k1\_numbers (k1\_euclid X0)) \Rightarrow ((X1 \in k3\_chain\_1 X0 X2 X3) \Leftrightarrow (\neg (\neg \forall X4. \\
 & \quad (m2\_subset\_1 X4 k5\_numbers (k2\_finseq\_1 X0)) \Rightarrow ((r1\_xxreal\_0 ( \\
 & \quad k1\_seq\_1 X2 X4) (k1\_seq\_1 X1 X4)) \wedge (r1\_xxreal\_0 (k1\_seq\_1 X1 X4) \\
 & \quad (k1\_seq\_1 X3 X4)))))) \wedge (\forall X4. (m2\_subset\_1 X4 k5\_numbers (k2\_finseq\_1 \\
 & X0)) \Rightarrow (\neg (\neg r1\_xxreal\_0 (k1\_seq\_1 X2 X4) (k1\_seq\_1 X3 X4)) \wedge ((r1\_xxreal\_0 \\
 & \quad (k1\_seq\_1 X1 X4) (k1\_seq\_1 X3 X4)) \vee (r1\_xxreal\_0 (k1\_seq\_1 X2 X4) \\
 & \quad (k1\_seq\_1 X1 X4))))))))))
 \end{aligned}$$