

# t63\_chord (TMdqhcHWkYqsvB- srQPo4cEhWXHn3zuTuLgs)

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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  $k5\_numbers : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_glib\_000 : \iota \Rightarrow o$  be given. Let  $v2\_chord : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_glib\_000 : \iota \Rightarrow \iota$  be given. Let  $m2\_glib\_000 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k21\_glib\_000 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r5\_glib\_000 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $r1\_glib\_000 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_glib\_000 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k24\_glib\_000 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_chord : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k25\_glib\_000 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \Rightarrow (\forall X1.((v1\_relat\_1 \\ X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_finset\_1 \\ X1) \wedge (v1\_glib\_000 X1)))))) \Rightarrow (((r5\_glib\_000 X0 X1) \wedge (v2\_chord X0)) \Rightarrow \\ (v2\_chord X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ X1 (k1\_zfmisc\_1 (k6\_glib\_000 X0))) \Rightarrow (\forall X2.(m2\_glib\_000 \\ X2 X0 X1 (k21\_glib\_000 X0 X1)) \Rightarrow (\forall X3. \forall X4. ((X3 \in X1) \wedge \\ (X4 \in X1)) \Rightarrow (\forall X5.(r1\_glib\_000 X0 X3 X4 X5) \Rightarrow (r1\_glib\_000 X2 \\ X3 X4 X5)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge \\ & ((v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \wedge (( \\ & v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge ((v1\_funct\_1 X1) \wedge \\ & ((v1\_finset\_1 X1) \wedge (v1\_glib\_000 X1)))))) \Rightarrow ((r5\_glib\_000 X0 X1) \Rightarrow \\ & (r5\_glib\_000 X1 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. r1\_tarski X0 X0 \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge \\ & ((v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \wedge (m1\_glib\_000 \\ & X1 X0)) \Rightarrow (k24\_glib\_000 X0 X1 = k6\_glib\_000 X1) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 \\ & X0 k5\_numbers) \wedge ((v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 \\ & X0)))))) \Rightarrow (\forall X3. (m2\_glib\_000 X3 X0 X1 X2) \Rightarrow (m1\_glib\_000 X3 \\ & X0)) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ & X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \Rightarrow (\forall X1. (m1\_glib\_000 \\ & X1 X0) \Rightarrow ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge ((v1\_funct\_1 \\ & X1) \wedge ((v1\_finset\_1 X1) \wedge (v1\_glib\_000 X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ & X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \Rightarrow ((v2\_chord X0) \Leftrightarrow \\ & (\forall X1. (m1\_subset\_1 X1 (k6\_glib\_000 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2 (k6\_glib\_000 X0)) \Rightarrow ((X1 \neq X2) \Rightarrow (r1\_chord X0 X1 X2)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ & X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \Rightarrow (\forall X1. (m1\_subset\_1 \\ & X1 (k6\_glib\_000 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k6\_glib\_000 \\ & X0)) \Rightarrow ((r1\_chord X0 X1 X2) \Leftrightarrow (\exists X3. r1\_glib\_000 X0 X1 X2 X3)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\
& \quad X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \Rightarrow (\forall X1. \forall X2. \\
& \quad \forall X3.(m1\_glib\_000 X3 X0) \Rightarrow (((\neg(v1\_xboole\_0 X1) \wedge (m1\_subset\_1 \\
& \quad X1 (k1\_zfmisc\_1 (k6\_glib\_000 X0)))) \wedge (r1\_tarski X2 (k21\_glib\_000 \\
& X0 X1))) \Rightarrow ((m2\_glib\_000 X3 X0 X1 X2) \Leftrightarrow ((k24\_glib\_000 X0 X3 = X1) \wedge ( \\
& \quad k25\_glib\_000 X0 X3 = X2)))) \wedge ((\neg(\neg(v1\_xboole\_0 X1) \wedge (m1\_subset\_1 \\
& \quad X1 (k1\_zfmisc\_1 (k6\_glib\_000 X0)))) \wedge (r1\_tarski X2 (k21\_glib\_000 \\
& X0 X1))) \Rightarrow ((m2\_glib\_000 X3 X0 X1 X2) \Leftrightarrow (r5\_glib\_000 X3 X0))))))
\end{aligned} \tag{12}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\
& \quad X0) \wedge ((v1\_finset\_1 X0) \wedge ((v1\_glib\_000 X0) \wedge (v2\_chord X0)))))) \Rightarrow \\
& \quad (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k6\_glib\_000 X0))) \Rightarrow \\
& \quad (\forall X2.(m2\_glib\_000 X2 X0 X1 (k21\_glib\_000 X0 X1)) \Rightarrow (v2\_chord \\
& \quad X2)))
\end{aligned}$$