

## t22\_taxonom1

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $k1\_numbers : \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_taxonom1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_metric\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k13\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $r3\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 X0 X0))) \Rightarrow (((r1\_relat\_2 X1 X0) \wedge (r3\_relat\_2 X1 X0)) \Rightarrow \\ ((v1\_partfun1 (k13\_lang1 X0 X1) X0) \wedge ((v3\_relat\_2 (k13\_lang1 X0 \\ X1)) \wedge ((v8\_relat\_2 (k13\_lang1 X0 X1)) \wedge (m1\_subset\_1 (k13\_lang1 \\ X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) k1\_numbers)))) \Rightarrow \\ (\forall X2. (v1\_xreal\_0 X2) \Rightarrow ((v4\_metric\_1 X1 X0) \Rightarrow (r3\_relat\_2 \\ (k1\_taxonom1 X0 X1 X2) X0)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_funct\_1 \\ X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\ X0) k1\_numbers)))) \wedge (v1\_xreal\_0 X2))) \Rightarrow (m1\_subset\_1 (k1\_taxonom1 \\ X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))) \end{aligned} \quad (3)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\ m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) k1\_numbers)))) \Rightarrow \\ & (\forall X2.(v1\_xreal\_0 X2) \Rightarrow (((r1\_relat\_2 (k1\_taxonom1 X0 X1 \\ X2) X0) \wedge (v4\_metric\_1 X1 X0)) \Rightarrow ((v1\_partfun1 (k13\_lang1 X0 (k1\_taxonom1 \\ X0 X1 X2)) X0) \wedge ((v3\_relat\_2 (k13\_lang1 X0 (k1\_taxonom1 X0 X1 X2))) \wedge \\ & ((v8\_relat\_2 (k13\_lang1 X0 (k1\_taxonom1 X0 X1 X2))) \wedge (m1\_subset\_1 \\ (k13\_lang1 X0 (k1\_taxonom1 X0 X1 X2)) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ X0 X0)))))))))) \end{aligned}$$