

# t16\_fuzzy\_1

(TMbir2Rin2gaPF6xuFh5w6QTJoHLUDjEhgi)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_rcomp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_fuzzy\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_fuzzy\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_fuzzy\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_fuzzy\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v5\_relat\_1 X1 (k1\_rcomp\_1 \\ k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\ (r1\_fuzzy\_1 X1 (k5\_fuzzy\_1 X0))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v5\_relat\_1 X1 (k1\_rcomp\_1 \\ k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\ (r1\_fuzzy\_1 (k4\_fuzzy\_1 X0) X1)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v5\_relat\_1 \\ X1 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 \\ X1 X0 k1\_numbers) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\ k1\_numbers)))))) \wedge ((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge \\ ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\ X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers))))))))) \Rightarrow ((r2\_fuzzy\_1 \\ X0 X1 X2) \Leftrightarrow (r1\_fuzzy\_1 X1 X2)) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow ((v5\_relat\_1 (k5\_fuzzy\_1 X0) (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 (k5\_fuzzy\_1 X0)) \wedge ((v1\_funct\_2 (k5\_fuzzy\_1 X0) X0 k1\_numbers) \wedge (m1\_subset\_1 (k5\_fuzzy\_1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \quad (4)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow ((v5\_relat\_1 (k4\_fuzzy\_1 X0) (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 (k4\_fuzzy\_1 X0)) \wedge ((v1\_funct\_2 (k4\_fuzzy\_1 X0) X0 k1\_numbers) \wedge (m1\_subset\_1 (k4\_fuzzy\_1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v5\_relat\_1 X1 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\ (\forall X2.((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow ((r2\_fuzzy\_1 X0 X1 X2) \Leftrightarrow (\forall X3.(m1\_subset\_1 X3 X0) \Rightarrow (r1\_xreal\_0 (k1\_seq\_1 X1 X3) (k1\_seq\_1 X2 X3)))))) \quad (6) \end{aligned}$$

**Theorem 1**

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow \\ (\forall X2.((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow ((r1\_xreal\_0 (k1\_seq\_1 (k4\_fuzzy\_1 X0) X1) (k1\_seq\_1 X2 X1)) \wedge (r1\_xreal\_0 (k1\_seq\_1 X2 X1) (k1\_seq\_1 (k5\_fuzzy\_1 X0) X1)))))) \end{aligned}$$