

## t21\_fuzzy\_1

(TMMNc12YvvC3QxGXwpcwxsTrcVgbs5Lwky2)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_fuzzy\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_fuzzy\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_fuzzy\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v5\_relat\_1 X1 (k1\_rcomp\_1 \\
 & k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge \\
 & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\
 & (\forall X2. ((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ( \\
 & (v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\
 & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow (\forall X3. \\
 & ((v5\_relat\_1 X3 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 \\
 & X3) \wedge ((v1\_funct\_2 X3 X0 k1\_numbers) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
 & (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow ((r2\_funct\_2 X0 k1\_numbers \\
 & (k2\_fuzzy\_1 X0 (k2\_fuzzy\_1 X0 X1 X2) X3) (k2\_fuzzy\_1 X0 X1 (k2\_fuzzy\_1 \\
 & X0 X2 X3))) \wedge (r2\_funct\_2 X0 k1\_numbers (k1\_fuzzy\_1 X0 (k1\_fuzzy\_1 \\
 & X0 X1 X2) X3) (k1\_fuzzy\_1 X0 X1 (k1\_fuzzy\_1 X0 X2 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v5\_relat\_1 X1 (k1\_rcomp\_1 \\
& k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\
& (\forall X2.((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ( \\
& (v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow (\forall X3. \\
& ((v5\_relat\_1 X3 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 \\
& X3) \wedge ((v1\_funct\_2 X3 X0 k1\_numbers) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow ((r1\_fuzzy\_1 X1 X2) \Rightarrow (r1\_fuzzy\_1 \\
& (k2\_fuzzy\_1 X0 X1 X3) (k2\_fuzzy\_1 X0 X2 X3))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v5\_relat\_1 X1 (k1\_rcomp\_1 \\
& k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\
& (\forall X2.((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ( \\
& (v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow (\forall X3. \\
& ((v5\_relat\_1 X3 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 \\
& X3) \wedge ((v1\_funct\_2 X3 X0 k1\_numbers) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow (((r1\_fuzzy\_1 X1 X2) \wedge (r1\_fuzzy\_1 \\
& X3 X2)) \Rightarrow (r1\_fuzzy\_1 (k2\_fuzzy\_1 X0 X1 X3) X2))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v5\_relat\_1 X1 (k1\_rcomp\_1 \\
& k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\
& (\forall X2.((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ( \\
& (v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow ((r1\_fuzzy\_1 \\
& (k1\_fuzzy\_1 X0 X1 X2) X1) \wedge (r1\_fuzzy\_1 X1 (k2\_fuzzy\_1 X0 X1 X2))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\
& X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 \\
& X3) \Leftrightarrow (X2 = X3))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v5\_relat\_1 X1 (k1\_rcomp\_1 \\
& k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\
& (\forall X2.((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ( \\
& (v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow (((r1\_fuzzy\_1 \\
& X1 X2) \wedge (r1\_fuzzy\_1 X2 X1)) \Rightarrow (r2\_funct\_2 X0 k1\_numbers X1 X2)))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0) \wedge (((v5\_relat\_1 \\
& X1 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 \\
& X1 X0 k1\_numbers) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\
& k1\_numbers)))))) \wedge ((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge \\
& ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers))))))))) \Rightarrow (k2\_fuzzy\_1 \\
& X0 X1 X1 = X1)
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0) \wedge (((v5\_relat\_1 \\
& X1 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 \\
& X1 X0 k1\_numbers) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\
& k1\_numbers)))))) \wedge ((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge \\
& ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers))))))))) \Rightarrow ((v5\_relat\_1 \\
& (k2\_fuzzy\_1 X0 X1 X2) (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 \\
& (k2\_fuzzy\_1 X0 X1 X2)) \wedge ((v1\_funct\_2 (k2\_fuzzy\_1 X0 X1 X2) X0 k1\_numbers) \wedge \\
& (m1\_subset\_1 (k2\_fuzzy\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\
& k1\_numbers))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0) \wedge (((v5\_relat\_1 \\
& X1 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 \\
& X1 X0 k1\_numbers) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\
& k1\_numbers)))))) \wedge ((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge \\
& ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers))))))))) \Rightarrow (k2\_fuzzy\_1 \\
& X0 X1 X2 = k2\_fuzzy\_1 X0 X2 X1)
\end{aligned} \tag{10}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v5\_relat\_1 X1 (k1\_rcomp\_1 \\ & k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 X0 k1\_numbers) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow \\ & (\forall X2.((v5\_relat\_1 X2 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge \\ & (v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 k1\_numbers) \wedge (m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow (\forall X3. \\ & ((v5\_relat\_1 X3 (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 \\ & X3) \wedge ((v1\_funct\_2 X3 X0 k1\_numbers) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k1\_numbers)))))) \Rightarrow (\forall X4.((v5\_relat\_1 X4 \\ & (k1\_rcomp\_1 k6\_numbers np\_1)) \wedge ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 \\ & X4 X0 k1\_numbers) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\ & k1\_numbers)))))) \Rightarrow (((r1\_fuzzy\_1 X1 X2) \wedge (r1\_fuzzy\_1 X3 X4)) \Rightarrow ( \\ & r1\_fuzzy\_1 (k2\_fuzzy\_1 X0 X1 X3) (k2\_fuzzy\_1 X0 X2 X4)))))) \end{aligned}$$