

## l43\_rinfsup2

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Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k7\_numbers : \iota$  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  $v3\_rinfsup2 : \iota \Rightarrow o$  be given. Let  $v8\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v7\_mesfunc5 : \iota \Rightarrow o$  be given. Let  $v10\_mesfunc5 : \iota \Rightarrow o$  be given. Let  $k2\_mesfunc5 : \iota \Rightarrow \iota$  be given. Let  $k2\_rinfsup2 : \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $v2\_comseq\_2 : \iota \Rightarrow o$  be given. Let  $k2\_seq\_2 : \iota \Rightarrow \iota$  be given. Let  $k5\_rinfsup1 : \iota \Rightarrow \iota$  be given. Let  $k6\_rinfsup1 : \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_rinfsup1 : \iota \Rightarrow \iota$  be given. Let  $r1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_rinfsup2 : \iota \Rightarrow o$  be given. Let  $v2\_seq\_2 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v2\_membered : \iota \Rightarrow o$  be given. Let  $k7\_supinf\_2 : \iota \Rightarrow \iota$  be given. Let  $k2\_xxreal\_2 : \iota \Rightarrow \iota$  be given. Let  $k5\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $k3\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k17\_supinf\_2 : \iota \Rightarrow \iota$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $v3\_xxreal\_2 : \iota \Rightarrow o$  be given. Let  $v4\_card\_3 : \iota \Rightarrow o$  be given. Let  $k2\_rinfsup1 : \iota \Rightarrow \iota$  be given. Let  $v2\_rinfsup2 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge \\ & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\ & ((v2\_comseq\_2 X0) \Rightarrow ((k2\_seq\_2 X0 = k5\_rinfsup1 X0) \wedge (k2\_seq\_2 X0 = \\ & k6\_rinfsup1 X0))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge \\ & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\ & ((v8\_valued\_0 X0) \Rightarrow (r2\_funct\_2 k5\_numbers k1\_numbers (k4\_rinfsup1 \\ & X0) X0)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge \\
& (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers k1\_numbers) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
& (((r1\_funct\_2 k5\_numbers k7\_numbers k5\_numbers k1\_numbers X0 \\
& X1) \wedge (v2\_comseq\_2 X1)) \Rightarrow ((v7\_mesfunc5 X0) \wedge ((v10\_mesfunc5 X0) \wedge \\
& (k2\_mesfunc5 X0 = k2\_seq\_2 X1))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge \\
& (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers k1\_numbers) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
& ((r1\_funct\_2 k5\_numbers k7\_numbers k5\_numbers k1\_numbers X0 X1) \Rightarrow \\
& ((v1\_rinf sup2 X0) \Leftrightarrow (v2\_seq\_2 X1))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge \\
& (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow \\
& ((v3\_rinf sup2 X0) \Rightarrow ((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers \\
& k1\_numbers) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\
& k1\_numbers))))))
\end{aligned} \tag{5}$$

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.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& ((\neg v1\_xboole\_0 X1) \wedge (\neg v1\_xboole\_0 X3) \wedge (((v1\_funct\_1 X4) \wedge (( \\
& v1\_funct\_2 X4 X0 X1) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X1)))))) \wedge ((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 X2 X3) \wedge (m1\_subset\_1 \\
& X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X2 X3)))))) \Rightarrow ((r1\_funct\_2 X0 X1 \\
& X2 X3 X4 X5) \Leftrightarrow (X4 = X5))
\end{aligned} \tag{7}$$

Assume the following.

$$\forall X0. (v2\_membered X0) \Rightarrow (k7\_supinf\_2 X0 = k2\_xreal\_2 X0) \tag{8}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_numbers)) \Rightarrow (k5\_seq\_4 X0 = k3\_seq\_4 X0) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1) \wedge (v5\_relat\_1 X1 X0)) \Rightarrow (k2\_relset\_1 X0 X1 = k10\_xtuple\_0 X1) \quad (10)$$

Assume the following.

$$\forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow (k17\_supinf\_2 X0 = k10\_xtuple\_0 X0) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v3\_membered X0) \wedge (v3\_xxreal\_2 X0))) \Rightarrow (k3\_seq\_4 X0 = k2\_xxreal\_2 X0) \quad (12)$$

Assume the following.

$$\neg v1\_xboole\_0 k7\_numbers \quad (13)$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \quad (14)$$

Assume the following.

$$\forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow ((v1\_funct\_1 (k4\_rinfsup1 X0) \wedge (v1\_funct\_2 (k4\_rinfsup1 X0) k5\_numbers k1\_numbers) \wedge (m1\_subset\_1 (k4\_rinfsup1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1) \wedge (v5\_relat\_1 X1 X0)) \Rightarrow (m1\_subset\_1 (k2\_relset\_1 X0 X1) (k1\_zfmisc\_1 X0)) \quad (16)$$

Assume the following.

$$\forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow ((\neg v1\_xboole\_0 (k17\_supinf\_2 X0)) \wedge ((v4\_card\_3 (k17\_supinf\_2 X0)) \wedge (m1\_subset\_1 (k17\_supinf\_2 X0) (k1\_zfmisc\_1 k7\_numbers)))) \quad (17)$$

Assume the following.

$$\forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow (k5\_rinfsup1 X0 = k2\_rinfsup1 (k4\_rinfsup1 X0)) \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge \\ & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow \\ & ((v3\_rinf sup2 X0) \Leftrightarrow ((v2\_rinf sup2 X0) \wedge (v1\_rinf sup2 X0))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge \\ & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow \\ & ((v1\_rinf sup2 X0) \Leftrightarrow (v3\_xxreal\_2 (k17\_supinf\_2 X0))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge \\ & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow \\ & (k2\_rinf sup2 X0 = k7\_supinf\_2 (k17\_supinf\_2 X0)) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge \\ & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\ & (k2\_rinf sup1 X0 = k5\_seq\_4 (k2\_relset\_1 k1\_numbers X0)) \end{aligned} \quad (22)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_numbers)) \Rightarrow (v3\_membered X0) \quad (23)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k7\_numbers)) \Rightarrow (v2\_membered X0) \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\ & k1\_numbers))) \Rightarrow (((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers \\ & k1\_numbers) \wedge ((v8\_valued\_0 X0) \wedge (v2\_seq\_2 X0)))) \Rightarrow ((v1\_funct\_1 \\ & X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge (v2\_comseq\_2 X0)))) \end{aligned} \quad (25)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v4\_relat\_1 X2 X0) \wedge (v5\_relat\_1 X2 X1)) \quad (26)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2) \quad (27)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge \\ & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))))) \Rightarrow \\ & (((v3\_rinf sup2 X0) \wedge (v8\_valued\_0 X0)) \Rightarrow ((v7\_mesfunc5 X0) \wedge ((v10\_mesfunc5 \\ & X0) \wedge (k2\_mesfunc5 X0 = k2\_rinf sup2 X0)))) \end{aligned}$$