

# t3\_rinfsup1

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Let  $v1\_xreal\_0 : \iota \Rightarrow o$  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  $k5\_numbers : \iota$  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  $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_xcmplx\_0 : \iota \Rightarrow \iota$  be given. Let  $k32\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k8\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_real\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $k30\_valued\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v3\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_membered : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge \\ (v1\_funct\_2 X1 k5\_numbers X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ k5\_numbers X0)))) \Rightarrow (\forall X2. (v7\_ordinal1 X2) \Rightarrow (k8\_nat\_1 X0 \\ X1 X2 \in k2\_relset\_1 X0 X1))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. ((v1\_funct\_1 X3) \wedge \\ ((v1\_funct\_2 X3 X1 X2) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ X1 X2)))) \Rightarrow (\neg(X0 \in k2\_relset\_1 X2 X3) \wedge (\forall X4. (m1\_subset\_1 \\ X4 X1) \Rightarrow (X0 \neq k1\_funct\_1 X3 X4)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge \\
& (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers k1\_numbers) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
& ((r2\_funct\_2 k5\_numbers k1\_numbers X0 (k32\_valued\_1 k5\_numbers \\
& k1\_numbers X1)) \Leftrightarrow (\forall X2.(m2\_subset\_1 X2 k1\_numbers k5\_numbers) \Rightarrow \\
& (k1\_seq\_1 X0 X2 = k1\_real\_1 (k1\_seq\_1 X1 X2))))))
\end{aligned} \tag{5}$$

Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 \\
& X1 k5\_numbers X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\
& X0)))))) \wedge (v7\_ordinal1 X2)) \Rightarrow (k8\_nat\_1 X0 X1 X2 = k1\_funct\_1 X1 X2)
\end{aligned} \tag{8}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((v3\_membered X1) \wedge ((v1\_funct\_1 \\
& X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow (k32\_valued\_1 \\
& X0 X1 X2 = k30\_valued\_1 X2)
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1\_relat\_1 X1) \wedge (v5\_relat\_1 X1 X0)) \Rightarrow ( \\
& k2\_relset\_1 X0 X1 = k10\_xtuple\_0 X1)
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v3\_valued\_0 \\
& X0))) \Rightarrow (k1\_seq\_1 X0 X1 = k1\_funct\_1 X0 X1)
\end{aligned} \tag{12}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (k1\_real\_1 X0 = k4\_xcmplx\_0 X0) \quad (13)$$

Assume the following.

$$\exists X0.v7\_ordinal1 X0 \quad (14)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k4\_xcmplx\_0 (k4\_xcmplx\_0 X0) = X0) \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v3\_membered X1) \wedge ((v1\_funct\_1 \\ X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow (k32\_valued\_1 \\ X0 X1 (k32\_valued\_1 X0 X1 X2) = X2) \end{aligned} \quad (16)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v1\_xboole\_0 X1) \wedge (v3\_membered \\ X1)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 \\ (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((v1\_funct\_1 (k30\_valued\_1 \\ X2)) \wedge (v1\_partfun1 (k30\_valued\_1 X2) X0)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v3\_valued\_0 X0))) \Rightarrow \\ ((v1\_relat\_1 (k30\_valued\_1 X0)) \wedge ((v1\_funct\_1 (k30\_valued\_1 \\ X0)) \wedge ((v1\_valued\_0 (k30\_valued\_1 X0)) \wedge (v3\_valued\_0 (k30\_valued\_1 \\ X0))))) \end{aligned} \quad (19)$$

Assume the following.

$$v3\_membered k1\_numbers \quad (20)$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \quad (21)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ( \\ (v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge (v1\_valued\_0 X1)))))) \Rightarrow ( \\ (v1\_relat\_1 (k30\_valued\_1 X1)) \wedge ((v1\_funct\_1 (k30\_valued\_1 X1)) \wedge \\ ((v1\_partfun1 (k30\_valued\_1 X1) X0) \wedge (v1\_valued\_0 (k30\_valued\_1 \\ X1))))) \end{aligned} \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m2\_subset\_1 X2 X0 X1)\Rightarrow(m1\_subset\_1 X2 X0)) \quad (23)$$

Assume the following.

$$m1\_subset\_1 k5\_numbers (k1\_zfmisc\_1 k1\_numbers) \quad (24)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v3\_membered X1)\wedge((v1\_funct\_1 X2)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))\Rightarrow((v1\_funct\_1 (k32\_valued\_1 X0 X1 X2))\wedge(m1\_subset\_1 (k32\_valued\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v5\_relat\_1 X1 X0))\Rightarrow(m1\_subset\_1 (k2\_relset\_1 X0 X1) (k1\_zfmisc\_1 X0)) \quad (26)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \quad (27)$$

Assume the following.

$$\forall X0.(v3\_membered X0)\Rightarrow(v1\_membered X0) \quad (28)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(v1\_xcmplx\_0 X0) \quad (29)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v1\_funct\_2 X2 X0 X1)\Rightarrow(v1\_partfun1 X2 X0))) \quad (30)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v4\_relat\_1 X2 X0)\wedge(v5\_relat\_1 X2 X1)) \quad (31)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_relat\_1 X2) \quad (32)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v1\_partfun1 X2 X0)\Rightarrow(v1\_funct\_2 X2 X0 X1)) \quad (33)$$

Assume the following.

$$\forall X0.\forall X1.(v3\_membered X1)\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v3\_valued\_0 X2)) \quad (34)$$

Assume the following.

$$\forall X0.\forall X1.(v1\_membered X1)\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_valued\_0 X2)) \quad (35)$$

**Theorem 1**

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers k1\_numbers)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers))))))\Rightarrow((X0 \in k2\_relset\_1 k1\_numbers X1)\Leftrightarrow (k4\_xcmplx\_0 X0 \in k2\_relset\_1 k1\_numbers (k32\_valued\_1 k5\_numbers k1\_numbers X1)))$$