

## t19\_metrizts

(TMX3UaqyZDsHruJqwthN1vD1rNA8th9BBhw)

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Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v3\_pcomps\_1 : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_card\_1 : \iota \Rightarrow o$  be given. Let  $r1\_ordinal1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_waybel23 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v4\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_tex\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_tops\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_setfam\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_topgen\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v2\_pre\_topc X0) \wedge ((v3\_pcomps\_1 X0) \wedge (l1\_pre\_topc X0))) \Rightarrow (\forall X1. ((\neg v1\_finset\_1 X1) \wedge (v1\_card\_1 X1)) \Rightarrow ((r1\_ordinal1 (k2\_waybel23 X0) X1) \Leftrightarrow (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\neg (v1\_tops\_2 X2 X0) \wedge ((m1\_setfam\_1 X2 (u1\_struct\_0 X0)) \wedge (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\neg (r1\_tarski X3 X2) \wedge ((m1\_setfam\_1 X3 (u1\_struct\_0 X0)) \wedge (r1\_ordinal1 (k1\_card\_1 X3) X1)))))))))) \quad (2) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1\_card\_1 X0) \Rightarrow (\forall X1. ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc X1)) \Rightarrow ((\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow ((v2\_tex\_2 X2 X1) \Rightarrow (r1\_ordinal1 (k1\_card\_1 X2) X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X1)))) \Rightarrow (((v1\_tops\_2 X2 X1) \wedge (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X1)))) \Rightarrow (\forall X4. (m1\_subset\_1 X4 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow (((X3 \in X2) \wedge (X4 \in X2)) \Rightarrow ((X3 = X4) \vee (r1\_xboole\_0 X3 X4)))))) \Rightarrow ((k1\_xboole\_0 \in X2) \vee (r1\_ordinal1 (k1\_card\_1 X2) X0)))))) \quad (3) \end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_finset\_1 X0) \wedge (v1\_card\_1 X0)) \Rightarrow (\forall X1. ( \\
& (v2\_pre\_topc X1) \wedge ((v3\_pcomps\_1 X1) \wedge (l1\_pre\_topc X1))) \Rightarrow ((\forall X2. \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow (((v4\_pre\_topc \\
& X2 X1) \wedge (v2\_tex\_2 X2 X1)) \Rightarrow (r1\_ordinal1 (k1\_card\_1 X2) X0))) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow ((v2\_tex\_2 X2 \\
& X1) \Rightarrow (r1\_ordinal1 (k1\_card\_1 X2) X0))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1\_card\_1 X0) \Rightarrow (\forall X1. ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\
& X1)) \Rightarrow ((\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X1)))) \Rightarrow (\neg (v1\_tops\_2 X2 X1) \wedge ((m1\_setfam\_1 X2 (u1\_struct\_0 \\
& X1)) \wedge (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k1\_zfmisc\_1 ( \\
& u1\_struct\_0 X1)))) \Rightarrow (\neg (r1\_tarski X3 X2) \wedge ((m1\_setfam\_1 X3 (u1\_struct\_0 \\
& X1)) \wedge (r1\_ordinal1 (k1\_card\_1 X3) X0)))))) \Rightarrow (\forall X2. (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow (((v4\_pre\_topc X2 X1) \wedge (v2\_tex\_2 \\
& X2 X1)) \Rightarrow (r1\_ordinal1 (k1\_card\_1 X2) X0))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v2\_pre\_topc X0) \wedge ((v3\_pcomps\_1 X0) \wedge (l1\_pre\_topc \\
& X0))) \Rightarrow (\forall X1. ((\neg v1\_finset\_1 X1) \wedge (v1\_card\_1 X1)) \Rightarrow ((r1\_ordinal1 \\
& (k4\_topgen\_1 X0) X1) \Rightarrow (r1\_ordinal1 (k2\_waybel23 X0) X1)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v2\_pre\_topc X0) \wedge ((v3\_pcomps\_1 X0) \wedge (l1\_pre\_topc \\
& X0))) \Rightarrow (\forall X1. ((\neg v1\_finset\_1 X1) \wedge (v1\_card\_1 X1)) \Rightarrow ((\forall X2. \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow \\
& (((v1\_tops\_2 X2 X0) \wedge (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X0)))) \Rightarrow (\forall X4. (m1\_subset\_1 X4 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X0))) \Rightarrow (((X3 \in X2) \wedge (X4 \in X2)) \Rightarrow ((X3 = X4) \vee (r1\_xboole\_0 \\
& X3 X4)))))) \Rightarrow ((k1\_xboole\_0 \in X2) \vee (r1\_ordinal1 (k1\_card\_1 X2) X1))) \Rightarrow \\
& (r1\_ordinal1 (k4\_topgen\_1 X0) X1)))
\end{aligned} \tag{7}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v2\_pre\_topc X0) \wedge ((v3\_pcomps\_1 X0) \wedge (l1\_pre\_topc \\
& X0))) \Rightarrow (\forall X1. ((\neg v1\_finset\_1 X1) \wedge (v1\_card\_1 X1)) \Rightarrow ((r1\_ordinal1 \\
& (k2\_waybel23 X0) X1) \Leftrightarrow (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X0))) \Rightarrow (((v4\_pre\_topc X2 X0) \wedge (v2\_tex\_2 X2 X0)) \Rightarrow ( \\
& r1\_ordinal1 (k1\_card\_1 X2) X1))))))
\end{aligned}$$