

§2. Classification

Def. $f_i : M_i \rightarrow N_i$ C^∞ map, $i=0,1$
 \cup
 \mathcal{F}_i

$f_0^{-1}(y_0)$ and $f_1^{-1}(y_1)$ are C^∞ equiv.

(or C^0 equiv.)

$\Leftrightarrow y_i \in {}^a U_i$ nbd in N_i

$(f_0^{-1}(U_0), f_0^{-1}(y_0)) \xrightarrow{{}^a \tilde{\mathcal{F}}}$ $(f_1^{-1}(U_1), f_1^{-1}(y_1))$

$f_0 \downarrow$ $\begin{matrix} \curvearrowright \\ \exists \varphi \end{matrix}$ $\downarrow f_1$
 $(U_0, y_0) \xrightarrow{\varphi} (U_1, y_1)$

$\tilde{\mathcal{F}}, \varphi : \underline{C^\infty}$ diffeo.

(resp. homeo.)