$$B_\delta(2) \xrightarrow[\text{diff}]{\varphi} \mathbb{R} \begin{cases} {}^2\varphi = y \\ x^{\varphi(x)} = \varphi(x)^x \end{cases} \qquad {}^2\underline{\varphi}$$

$$B_\delta(0) \xrightarrow[+\text{ diff}]{g} B_\varepsilon(1) \begin{cases} y = g(x) \Leftrightarrow y^3 + xy = 1 \\ g(0) = 1 \end{cases} \qquad {}^x\underline{g}$$

$$B_\varepsilon(0) \xrightarrow[+\text{diff Kurve}]{\iota} \mathbb{R}^2 \begin{cases} \text{Bild } \iota \subset \dfrac{x{:}y \in \mathbb{R}^2}{xe^x + ye^y + xy = 0} \\ {}^0\iota = 0{:}0 \end{cases} \quad : \text{Tan-Vec } {}^0\underline{\iota}$$

$$f(x{:}y) = x^2\left(1 - x^2\right) - y^2$$

$$f\left(\bar{x}{:}\bar{y}\right) = 0{:} \quad \bar{x} \neq 0{:}\pm 1 \underset{\text{Lsg}}{\Longrightarrow} B_\varepsilon\left(\bar{x}\right) \xrightarrow[+\text{diff}]{g} \mathbb{R}^2 \begin{cases} f(x{:}g(x)) = 0 \\ g\left(\bar{x}\right) = \bar{y} \end{cases}$$

$$f(x{:}y) = e^{y/x} \text{ nach y loc auflosbar}$$

$$\bar{x}:\bar{y} \in \mathbb{R}_{>} \times \mathbb{R} \underset{\text{Lsg}}{\Longrightarrow} B_\varepsilon\left(\bar{x}\right) \xrightarrow[+\text{diff}]{g} \mathbb{R}^2 \begin{cases} e^{g(x)/x} = e^{\bar{y}/\bar{x}} \\ g\left(\bar{x}\right) = \bar{y} \end{cases} \qquad \text{ODE for loc Aufl } g$$

$$g'\left(\bar{x}\right) \text{ explizite Formel/SIF/differentiate } f(x{:}g(x)) = 0$$

$$S \underset{\text{surface}}{\overset{\text{hyper}}{=}} \frac{x \in \mathbb{R}^n}{{}^x\eta = 0} \subset \mathbb{R}^n \xrightarrow[\text{diff}]{\eta} \mathbb{R} \Leftrightarrow \bigwedge_{x \in S} {}^x\widehat{\nabla\eta} \neq 0 \Rightarrow \bigwedge_{o \in S} \bigvee \begin{cases} 0 \in U \subset \mathbb{R}^{n-1} \\ U \xrightarrow[\text{diff}]{\psi} S \end{cases} \quad \begin{cases} {}^0\psi = o \\ \bigwedge_{y \in U} \text{rk } {}^y\underline{\psi} = n - 1 \end{cases}$$

implicit diff

$$1 + \log\frac{x}{y} = y^2 e^{2x} \Longrightarrow \frac{dy}{dx} \text{ impl diff}$$