

$$\mathbb{R} \ni h \xrightarrow[\text{diff}]{} \mathbb{R} \Rightarrow \begin{cases} h \ni o \text{ loc extr} \Rightarrow {}^o\gamma = 0 \\ {}^o\gamma \neq 0 \Rightarrow \text{kein loc extr} \end{cases}$$

$${}^o\gamma \neq 0$$

$$\overline{x - o} \underset{*}{<} \frac{{}^o\gamma}{\gamma} \Rightarrow {}^o\gamma - \overline{{}^o\gamma} < \frac{{}^x\gamma - {}^o\gamma}{x - o} < {}^o\gamma + \overline{{}^o\gamma}$$

$$\frac{{}^x\gamma - {}^o\gamma}{x - o} - \overline{{}^o\gamma} \underset{*}{<} \overline{{}^o\gamma} \Rightarrow -\overline{{}^o\gamma} < \frac{{}^x\gamma - {}^o\gamma}{x - o} - {}^o\gamma < \overline{{}^o\gamma}$$

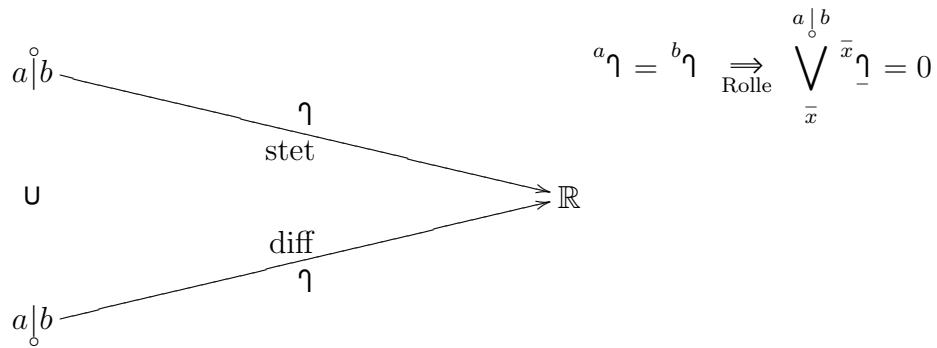
$o$  kein loc extr

$$\begin{cases} {}^o\gamma > 0 & \Rightarrow 0 < \frac{{}^x\gamma - {}^o\gamma}{x - o} \Rightarrow \begin{cases} x < o \Rightarrow x - o < 0 \Rightarrow {}^x\gamma - {}^o\gamma < 0 \Rightarrow {}^x\gamma < {}^o\gamma \Rightarrow {}^o\gamma \text{ kein loc min} \\ x > o \Rightarrow x - o > 0 \Rightarrow {}^x\gamma - {}^o\gamma > 0 \Rightarrow {}^x\gamma > {}^o\gamma \Rightarrow {}^o\gamma \text{ kein loc max} \end{cases} \\ {}^o\gamma < 0 & \Rightarrow \frac{{}^x\gamma - {}^o\gamma}{x - o} < 0 \Rightarrow \begin{cases} x < o \Rightarrow x - o < 0 \Rightarrow {}^x\gamma - {}^o\gamma > 0 \Rightarrow {}^x\gamma > {}^o\gamma \Rightarrow {}^o\gamma \text{ kein loc max} \\ x > o \Rightarrow x - o > 0 \Rightarrow {}^x\gamma - {}^o\gamma < 0 \Rightarrow {}^x\gamma < {}^o\gamma \Rightarrow {}^o\gamma \text{ kein loc min} \end{cases} \end{cases}$$

$${}^x\gamma = x^3 - 3x^2 + 1 \Rightarrow {}^{-1}\overset{\circ}{|}{}^3\gamma = -3\overset{\circ}{|}1$$

$${}^x\gamma = 3x^2 - 6x = 3x\underline{x-2} \Rightarrow \text{crit pts } \begin{cases} 0 & {}^0\gamma = 1 \\ 2 & {}^2\gamma = -3 \end{cases}$$

$$\text{end pts } \begin{cases} -1 & {}^{-1}\gamma = -3 \\ 3 & {}^3\gamma = 1 \end{cases}$$



$$\int_{\pm x}^{a|b} \left\{ \begin{array}{l} {}^{+x}\gamma = {}^{a|b}\gamma \\ {}^{-x}\gamma = {}^{a|b}\gamma \end{array} \right.$$

If both  $\pm x \in \{a:b\} \Rightarrow {}^{a|b}\gamma = {}^{a:b}\gamma = {}^{a|b}\gamma \Rightarrow \gamma = \text{cst} \Rightarrow \gamma = 0$

If ein  $\pm x \in a|b \Rightarrow \pm x$  extr von  ${}^{a|b}\gamma \Rightarrow {}^{\pm x}\gamma = 0$