$$\begin{cases} \lceil\!\lceil A+B \rceil\!\rceil \leqslant \lceil\!\lceil A \rceil\!\rceil + \lceil\!\lceil B \rceil\!\rceil & A{:}B \in \mathbb{R}^{m\times n} \\ \lceil\!\lceil AB \rceil\!\rceil \leqslant \lceil\!\lceil A \rceil\!\rceil \lceil\!\lceil B \rceil\!\rceil & A \in \mathbb{R}^{m\times n}: \quad B \in \mathbb{R}^{n\times p} \end{cases}$$

$$\max_{i:j} \lceil A_{i:j} \rceil \leqslant \lceil\!\lceil A \rceil\!\rceil \leqslant \sum_{i:j} \lceil A_{i:j} \rceil: \quad \lceil\!\lceil v \rceil\!\rceil \max_{i:j} \lceil A_{i:j} \rceil \leqslant \lceil\!\lceil Av \rceil\!\rceil \leqslant \lceil\!\lceil v \rceil\!\rceil \sum_{i:j} \lceil A_{i:j} \rceil$$

$$A \in \mathbb{R}^{n\times n} \xrightarrow[\text{stet/diff}]{Q} \mathbb{R}^{n\times n} \ni A^2 = AA: \quad \mathbb{R}^{n\times n} \xrightarrow[\text{lin}]{{}^{\bar{A}}\underline{Q}} \mathbb{R}^{n\times n}: \quad {}^{\bar{A}}\underline{Q}\, A = \bar{A}\,A + A\,\bar{A}$$

$$\text{matrix Komb } \left(\bar{A} + A\right)^2 - \bar{A}^2 - \left(\bar{A}A + A\bar{A}\right)$$

$$A \in \mathbb{R}^{n\times n} \xrightarrow[\text{diff}]{()^3} \mathbb{R}^{n\times n} \ni A^3 = AAA: \quad \text{Abl/aalg A9k}$$

$$A \in \mathbb{R}^{n\times n} \xrightarrow[\text{diff}_2]{Q_{hk}} \mathbb{R}: \quad {}^{A}Q_{hk} = A^2_{hk} \text{ Koeff von } A^2: \quad \text{Hesse-Matrix } \left(\frac{\partial^2 Q_{hk}}{\partial A_{ij} \partial A_{pq}}\right)$$

$$\frac{A \in \mathbb{R}^{n\times n}}{\ulcorner A \urcorner < 1} \ni A \underset{\text{stet}}{\mapsto} {}^{A}\text{ʋ} = {}^{I+A}\log = \sum_{k \geqslant 1} \frac{(-1)^{k-}}{k} A^k$$

$$p_k(A) = \frac{(-1)^{k-}}{k} A^k$$

$$\ulcorner p_k \urcorner: \quad R \text{ Konv-Rad } \sum_{k\geqslant 1} p_k$$

$$\ulcorner A \urcorner < 1 \Rightarrow \mathbb{R}^{n\times n} \xrightarrow[\text{lin}]{{}^{A}\underline{p}_{-k}} \mathbb{R}^{n\times n}$$

$$\mathbb{R}^{n\times n} \xrightarrow[k-1 \text{ hom}]{\underline{p}_{-k}} \mathcal{L}\left(\mathbb{R}^{n\times n}\right): \quad \ulcorner \underline{p}_{-k} \urcorner: \quad \text{Konv-Rad} \sum_{k\geqslant 2} \underline{p}_{-k}$$

$$\ulcorner A \urcorner < 1 \Rightarrow \text{ʋ diff in } A: \quad {}^{0}\underline{\text{ʋ}}$$

$$\ulcorner A \urcorner < 1 \Rightarrow \begin{cases} A^k \rightsquigarrow 0 \\ \sum_{k\geqslant 0} A^k = (I-A)^{-1} \text{ inv} \end{cases} \quad : \quad \ulcorner A - I \urcorner < 1 \Rightarrow \begin{cases} A \text{ inv} \\ A^{-1} \text{ Potenz-Reihe} \end{cases}$$

$$\exp A \begin{cases} \text{diag } A \in \mathbb{R}^{n\times n} \\ A \begin{array}{c} x \\ \hline y \\ \hline z \end{array} = \begin{array}{c} 0 \\ \hline x \\ \hline y \end{array} \end{cases}$$

$$\ulcorner A - I \urcorner < 1 \Rightarrow {}^{\log A}\exp = A$$

$$\frac{A \in \mathbb{R}^{n\times n}}{A \text{ diagonalisierbar}} \underset{\text{dicht}}{\subset} \mathbb{R}^{n\times n}$$

$$\exp / \log \text{ stet}$$

$$A{:}v \in \mathbb{R}^{m\times n} \times \mathbb{R}^n \xrightarrow[\text{bilin/diff}]{F} \mathbb{R}^m \ni Av: \quad \mathbb{R}^{m\times n} \times \mathbb{R}^n \xrightarrow[\text{lin}]{{}^{\bar{A}:\bar{v}}\underline{F}} \mathbb{R}^m$$