$$\mathrm{GL}_n^{\mathbb{R}} \times \mathbb{R}^{n\times n} \ni A{:}B \mapsto AB\,A^{-1} \in \mathbb{R}^{n\times n}\text{: tot diff/Abl}$$

$$\text{inv } g = \begin{array}{c|c} a & b \\ \hline c & d \end{array} \in \mathbb{R}^{2\times 2} \implies \text{DefBer } U_g = \frac{x \in \mathbb{R}}{cx+d \neq 0} \subsetneq \mathbb{R} \text{ off}$$

$$x \in U_g \xrightarrow[\text{Moe}]{F_g} \mathbb{R} \ni g(x) = \begin{array}{c|c} a & b \\ \hline c & d \end{array} (x) = \frac{ax+b}{cx+d}$$

$$F_g \text{ diff } / \underline{F}_g(x) / F_g F_h = F_{gh}$$

$$\text{inv } g = \begin{array}{c|c} a & b \\ \hline c & d \end{array} \in \mathbb{R}^{(n+1)\times(n+1)} \implies \text{DefBer } U_g = \frac{x \in \mathbb{R}^{n\times 1}}{cx+d \neq 0} \subsetneq \mathbb{R}^{n+1} \text{ off}$$

$$x \in U_g \xrightarrow[\text{Moe}]{F_g} \mathbb{R}^{n\times 1} \ni g(x) = \begin{array}{c|c} a & b \\ \hline c & d \end{array} (x) = \frac{ax+b}{cx+d}$$

$$F_g \text{ diff } / \underline{F}_g(x) / F_g F_h = F_{gh}$$