$$\left(1-x^2\right)\, \underline{\underline{y}} - 2x\, \underline{y} + 2y = 0: \quad \begin{cases} \mathbb{1}^{1} = x \\ \mathbb{1}^{0} = 1 - \sum\limits_{m \geqslant 1} \dfrac{x^{2m}}{2m-1} \end{cases}$$

$$x^2\, \underline{\underline{y}} + x\, \underline{y} + \left(x^2 - \frac{9}{4}\right) y = 0: \quad \begin{cases} \mathbb{1}^{1} = x^{3/2} \sum\limits_{m \geqslant 0} a_m x^{2m} & a_m = \dfrac{(-1)^m}{m!2^m} \prod\limits_{1 \leqslant j \leqslant m} \dfrac{1}{2j+3} \\ \mathbb{1}^{0} = x^{-3/2} \sum\limits_{m \geqslant 0} a_m x^{2m} & a_m = \dfrac{(-1)^m}{m!2^m} \prod\limits_{1 \leqslant j \leqslant m} \dfrac{1}{2j-3} \end{cases}$$

$$\left(1+x^2\right)\, \underline{\underline{y}} + x\, \underline{y} - y = 0: \quad \begin{cases} \mathbb{1}^{1} = x \\ \mathbb{1}^{0} = 1 - \sum\limits_{m \geqslant 1} (-1)^m \dfrac{1 \cdot 3 \cdot 5 \cdots (2m-3)}{m!2^m} x^{2m} \end{cases}$$

$$x\, \underline{\underline{y}} + \underline{y} - 4y = 0: \quad \begin{cases} \mathbb{1}^{0} = \sum\limits_{n \geqslant 0} \dfrac{4^n}{(n!)^2} x^n \\ \mathbb{1}^{1} = \mathbb{1}^{1} \left(\ln x - 8x + 20x^2 - \dfrac{1472}{27} x^3 + \cdots \right) \end{cases}$$

$$U \xrightarrow[\text{stet}]{\dot{h}} \mathbb{K}^n$$

$$U_{\underset{n}{\blacktriangle}} \mathbb{K}^n = \frac{U \xrightarrow[\text{n-stet diff}]{1} \mathbb{K}}{{}_n\underline{1} + \dot{h}.\underline{1} = 0 = {}_n\underline{1} + \sum_j \dot{h}^j\, {}_j\underline{1}} \text{ hom Lsg-Raum}$$

$$U_{\underset{n}{\blacktriangle}} \mathbb{K} \sqsubset U_{\underset{n}{\triangle}} \mathbb{K} \text{ lin UR}$$

$$U_{\underset{n}{\blacktriangle}} \mathbb{K} \ni \dot{1} \Rightarrow 0 = {}_n\underline{\dot{1}} + \dot{h}\,.\underline{\dot{1}} \Rightarrow {}_n\underline{1 + \acute{1}} + \dot{h}\,.\underline{1 + \acute{1}} = \overbrace{{}_n\underline{1} + {}_n\underline{\acute{1}}} + \overbrace{\dot{h}.\underline{1} + \dot{h}.\underline{\acute{1}}}$$

$$= \overbrace{{}_n\underline{1} + \dot{h}.\underline{1}} + \overbrace{{}_n\underline{\acute{1}} + \dot{h}.\underline{\acute{1}}} = 0 + 0 = 0 \Rightarrow 1 + \acute{1} \in U_{\underset{n}{\blacktriangle}} \mathbb{K}$$

$$\text{bel } t \in U \underset{\text{PicLin}}{\Longrightarrow} \bigvee U \xrightarrow[\text{hom Lsg}]{\begin{bmatrix} \mathbb{1}^{0} \\ \mathbb{1}^{n\text{-}1} \end{bmatrix}} \mathbb{K}^n$$

$${}^{t}_{i}\underline{\mathbb{1}}^{j} = {}^{t}\overbrace{\frac{\partial}{\partial t}}^{i}\, \underline{\mathbb{1}}^{j} = {}_{i}\mathbb{1}^{j} \text{ lin unabh}$$

$$\text{Wronski det} \begin{array}{c|c} {}^{t}_{0\_}\mathbb{1}^{0} & {}^{t}_{0\_}\mathbb{1}^{n-1} \\ \hline {}^{t}_{n-1\_}\mathbb{1}^{0} & {}^{t}_{n-1\_}\mathbb{1}^{n-1} \end{array} \neq 0$$

$$\mathbb{1}^{0} \cdots \mathbb{1}^{n-1} \underset{\text{basic}}{\in} {}^{U}\blacktriangle_{n} \mathbb{K}$$

$$\dim_{\mathbb{K}} {}^{U}\blacktriangle_{n} \mathbb{K} = n$$

$$\mathbb{1}^{0} \cdots \mathbb{1}^{n-1} \ \text{free}$$

$$_{j}c \in \mathbb{K} \wedge 0 = \sum_{j}^{n} \mathbb{1}^{j} \ _{j}c \Longrightarrow 0 = \underline{{}^{t}\sum_{j}^{n} \mathbb{1}^{j} \ _{j}c}_{\,i} = \sum_{j}^{n} {}^{t}_{i\_}\mathbb{1}^{j} \ _{j}c \Longrightarrow \ _{j}c = 0$$

$$\mathbb{1}^{0} \cdots \mathbb{1}^{n-1} \ \text{hull}$$

$$1 \in {}^{U}\blacktriangle_{n} \mathbb{K} \Longrightarrow {}^{t}_{i\_}1 = \sum_{j}^{n} \ _{i}\mathbb{1}^{j} \ _{j}c = \sum_{j}^{n} {}^{t}_{i\_}\mathbb{1}^{j} \ _{j}c = \underline{{}^{t}\sum_{j}^{n} \mathbb{1}^{j} \ _{j}c}_{\,i}$$

$$\Longrightarrow 1 - \sum_{j}^{n} \mathbb{1}^{j} \ _{j}c \in {}^{U}\blacktriangle_{n} \mathbb{K} \wedge \underline{{}^{t}1 - \sum_{j}^{n} \mathbb{1}^{j} \ _{j}c}_{\,i} = 0 \underset{\text{eind}}{\Longrightarrow} 1 - \sum_{j}^{n} \mathbb{1}^{j} \ _{j}c = 0 \Longrightarrow 1 = \sum_{j}^{n} \mathbb{1}^{j} \ _{j}c$$

$$ {}^{U}\blacktriangle_{n} \mathbb{K}^{n} \ni \ _{\cdot}\mathbb{1}^{\cdot} \ _{\cdot}c = \ _{\cdot}\mathbb{1}^{j} \ _{j}c = \begin{bmatrix} _{1}\mathbb{1}^{\cdot} \ _{\cdot}c \\ _{n}\mathbb{1}^{\cdot} \ _{\cdot}c \end{bmatrix} = \begin{bmatrix} _{1}\mathbb{1}^{j} \ _{j}c \\ \vdots \\ _{n}\mathbb{1}^{j} \ _{j}c \end{bmatrix} \text{ gen sol}$$